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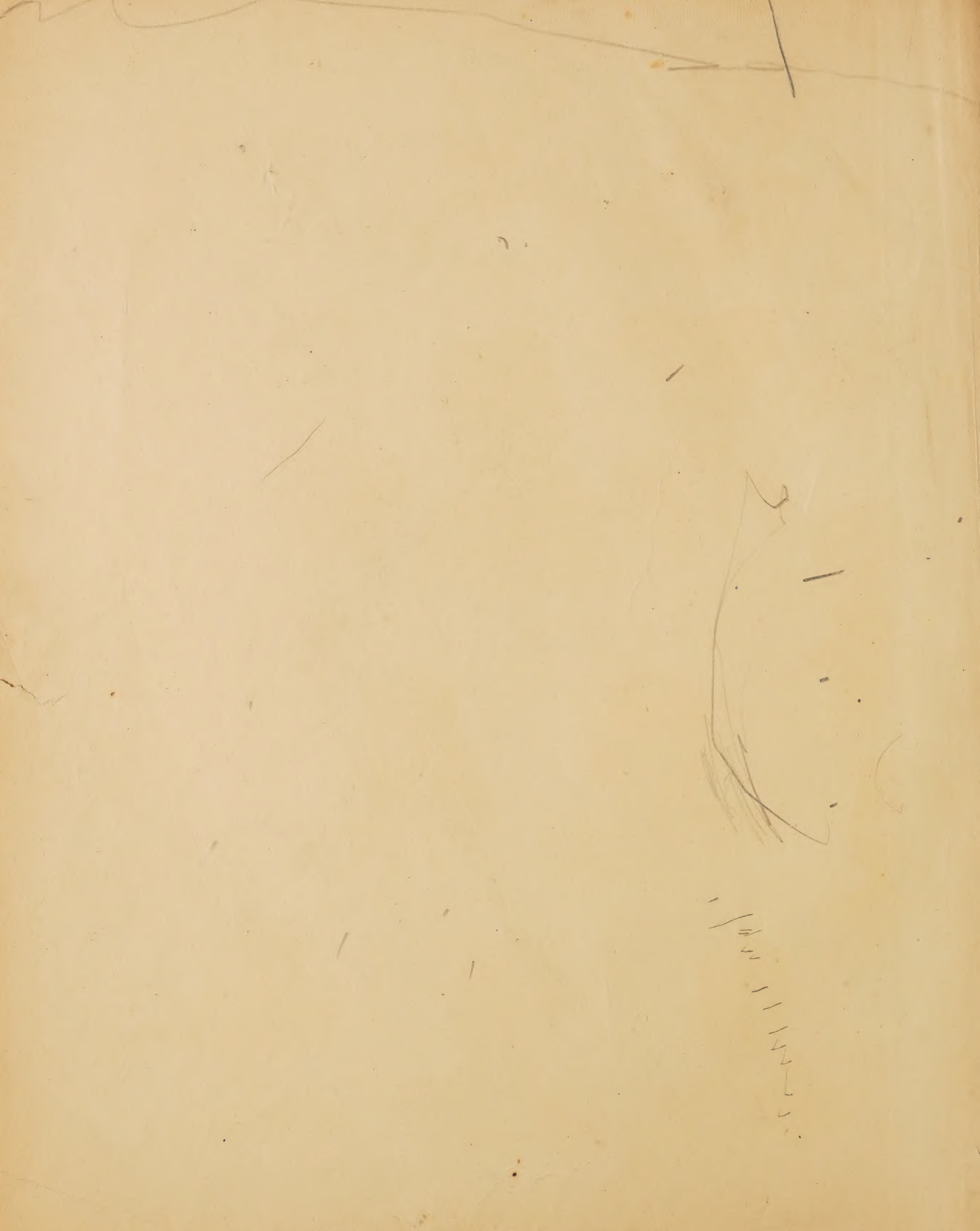
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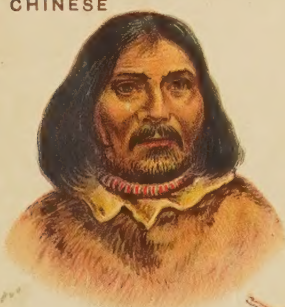
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BY

M. F. MAURY, LL. D.

Author of "Physical Geography of the Sea," and late Superintendent of the National Observatory, Washington, D. C.

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PREFACE.

IN preparing this book we have carefully considered and have incorporated into it every feature which a consensus of opinion among educators has come to recognize as of real educational value. The whole geographical field was open to us, and we were free to choose whatever was regarded by the majority as best. We therefore offer this book as an embodiment of what conservative teachers regard as a safe mean between the widely divergent theories on which recent geographies have been based.

Physiography.—We have presented in an introductory chapter, and in the general chapter on physical geography, the leading facts with reference to land formation and land sculpture. We have presented these facts in detail in the discussion of the physical features of each continent, where they properly belong and can best be studied; we have again presented them in detail in the political sub-divisions of the continents, where their effects upon climate, industries, and people are pointed out. But we have not thought it wise to present an extended treatise on physiography, covering the first half of the book, to be studied long before the countries necessarily referred to have been given a definite location in the student's mind. We think it better to take up these features in detail under the continents and countries where they first become prominent.

We have decided to teach these features objectively on a plan that has been highly commended. For instance, instead of devoting two or three pages of text to the origin of mountains, a subject in which the average child takes no interest, we give in the general presentation of the physical geography of the earth four pictures of mountains, and under each picture give a brief description of the origin and character of the formation. The same course has been followed with reference to other physical features. The pupil will read these descriptions because of his interest in the picture, and will remember them for life because of their association with it.

Commercial and Industrial Geography.—A leading feature of this book is the treatment of industrial and commercial geography. In actual life, it is a knowledge of the countries of the earth, and of the people who inhabit them, of their resources and industries, their cities and commercial relations, that one needs for practical business purposes, or even for an intelligent appreciation of the contents of the daily newspapers.

Industrial Illustrations.—In carrying out this plan we have been engaged for three years past in collecting from all parts of the world industrial pictures—photographs showing machinery in actual operation, and under these we have placed captions which give in a few words a clear idea of the process of manufacture. We have distributed these throughout the book in such a way as to identify each industry with some state or country where it is especially prominent. We believe that this plan will awaken present interest and prove of permanent value.

Commercial Illustrations.—We also present a number of pictures made from photographs which relate to the commerce of the world, and under each have placed captions which fully explain them and which will enable the pupil to make valuable comparisons and to learn how the products of the world are handled. Turn to the picture of New York, page 46, of New Orleans, page 58, of San Francisco, page 78, of Antofa-

gasta, page 107, of Liverpool, page 118, of Port Elizabeth, page 159, and many others of the same character which most strikingly illustrate this point.

Other Illustrations.—In addition to physical, industrial, and commercial illustrations, many others will be found, especially in the treatment of foreign countries, which give characteristic scenes in the life of the people; such as are found in Mexico, page 95, in Chile, page 107, Switzerland, page 133, in India, pages 144-5, etc.

Production Maps.—Maps and diagrams showing the relative production of countries and their rank in industrial activities are of great value. They enable the pupil to get at a glance a large number of geographical facts. The pupil should be encouraged to make his own production maps, using blanks, which he may draw, trace, or buy, for that purpose. For instance, to show the corn production of the United States, the pupil may write on a blank map the name "corn" where it is produced, or may indicate it by color, shading, or other methods. In making such maps or diagrams the statistical tables will be found particularly useful. Maps which he makes in this way are invaluable, and fix the facts permanently in his mind. Graphic representations of industrial rank, etc., can be made with equal profit.

In the treatment of the United States each group of States is treated as a whole, and those features, physical and industrial, that are common to all, are presented in a general way. But each state, however small, has its own characteristics, its own group of cities, and certain industries that are peculiarly its own. These, we hold, should be known to all the people of the United States. Therefore, after the general description of each section, we have given a detailed description of each state. We think this much better than to select some one city or state as a type and devote pages to it while dismissing others with a line—a method which gives pupils a distorted idea of the states' and cities' relative importance.

Maps.—The maps are recent, and the double-page map, pages 86-87, showing the principal routes of transportation and travel will, we believe, prove of especial value.

Map Questions.—The map questions are comprehensive and complete. The questions upon the physical maps bring out the physical features; those upon the political maps fix in the pupil's mind the essential political features. A few years ago there was a certain prejudice against map questions; but this has passed away. To-day they are regarded by a majority of teachers as invaluable—they compel the pupil to refer again and again to the map, and this constant reference fixes its features on the memory. In after life the man may forget the map questions and the answers, but he still retains a clear mental picture of the map itself.

Accuracy.—In order to secure absolute accuracy in our description of the states, we sent last year to the Governor, or, in three instances, to another state officer, our description of his state, asking whether or not it was accurate and up to date. We received replies in many instances from the Governor himself, and in other instances from an officer in whose hands he had placed the matter. These replies either approved the

text or offered suggestions which we gratefully accepted. For foreign countries we obtained by direct correspondence with our consuls, from their official reports, the industrial and commercial details which go into the text. The statistics are taken from the latest department reports from Washington and from the latest foreign authorities.

Illustrations.—The illustrations are all from photographs, and a large part of these we have collected during the past two years in all parts of the world. We are indebted for several of our pictures to Messrs. Underwood and Underwood, whose copyrighted stereographic photographs we cordially recommend for purposes of geographical illustrations. We are also indebted for a few illustrations to Mr. H. C. White and to the Detroit Photographic Company, who own the copyrights.

To teachers and superintendents, both North and South, we are indebted for valuable assistance and suggestions, which came from their actual experience in the practical work of teaching geography to boys and girls.

We offer this as a new book, arranged on the plan as already outlined to meet the consensus of opinion of earnest, thoughtful educators who are teaching the subject of geography, or superintending educational systems. Wherever the text of MAURY'S MANUAL has been complete and sufficient

it has been retained. We were glad to be able to do this because it is so clear, simple, and attractive that it has won for the book the uniform favor of the teachers using it. The original text makes up so large a part of the book that it is still essentially Maury's work. Maury's Geographies never belonged to the old school, but rather to the new. Being devoted to the study of physical geography, and father of the science of the "Physical Geography of the Sea," he undertook the preparation of his book originally with the intention and purpose, "to redeem the most delightful of subjects from the bondage of dry statistics on one hand, and on the other, from the drudgery of vague, general ideas." In his original preface he adds: "In the preparation of this volume and that of its predecessors, no pains have been spared to lead the young geographer by easy and gentle gradations to vantage-ground from which he may overlook and survey nature for himself. 'The study of physical geography,' to borrow the words of Humboldt, 'finds its noblest and richest reward in a knowledge of the chain of connection by which all natural forces are linked together and made mutually dependent upon each other; and it is the perception of these relations that exalts our view and ennobles our enjoyment.'" It will therefore be seen that the development of modern methods of teaching this subject have only brought it nearer to Maury's ideal.

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GEOGRAPHY



INTRODUCTION.

1. The Earth is one of the Heavenly Bodies.—As we look into the sky on a clear night and behold the multitude of stars glittering in the far-away depth of space, it is hard to find any resemblance between them and the dark, solid earth on which we stand. It is hard to believe that the earth is a huge sphere rushing along in its curved path about the sun at a rate of speed swifter than that of a cannon ball, and at the same time rotating on its axis, apparently turning everything upside down every twenty-four hours.

And yet if we could stand upon the moon and view the earth, it would appear much as the moon now appears to us, only about four times as large; and if we could see it from a much greater distance, its appearance would be precisely like that of some of the stars.

2. The Fixed Stars.—If we should watch the stars carefully from night to night, we would observe what men observed thou-

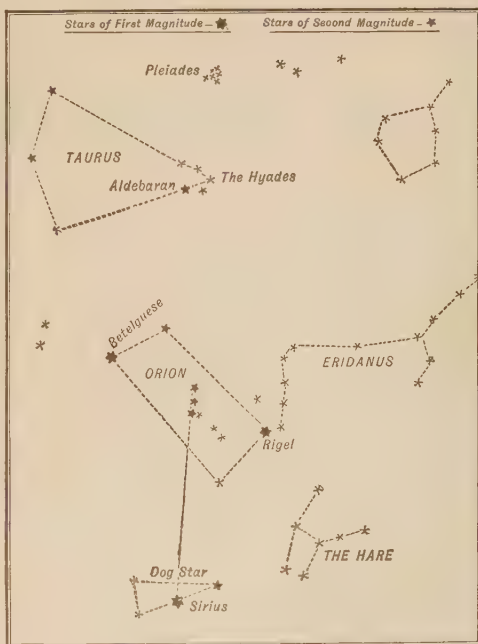
sands of years ago—that some of them always keep in the same positions, while others are constantly moving onward along certain paths. The stars of the first kind are called **fixed stars**; to those of the second kind the name **planets**, or **wanderers**, has been given.

The fixed stars are fiery suns like our own, but they are so far away that we can see only the light that comes from them. They are more than can be numbered, for though we can see only a few thousand with the eye alone, with the aid of a powerful telescope millions more are brought into view, which are at such enormous distances from the earth that not the faintest ray of their light is visible to the naked eye.

These stars appear to be arranged in groups, or **constellations**, which the ancient astronomers explained by saying that the gods had placed in the sky certain persons and animals as a reward for some merit that they possessed. Thus the "**Great Bear**," or "**Dipper**," was Callisto, a beautiful princess of Arcadia, whom the jealous Juno turned into a bear, and who was placed in the sky by Jupiter. The "**Little Bear**," which contains the Pole Star, was her son,

The lessons as far as page 24, should be read and discussed with books open by class and teacher. Frequent reference should be made to these lessons during the progress of the class through the book, and after it has been completed they may be assigned as regular lessons for recitation.

Arcas. Near the two bears are **Cassiopeia**, **Cepheus**, and the **Dragon**, about each of whom a story is told by the Greek writers. There is a great belt in the sky composed of twelve constellations entirely surrounding the earth. This belt is called the **zodiac**. Within it is the path along which the sun appears to travel in his yearly course. You may find the names of these constellations in an almanac, where they are called the **twelve signs of the zodiac**.



A group of familiar constellations. *Sirius is the brightest of the fixed stars. Notice that the three stars forming the belt of Orion point to it. The Hyades form a V and the Pleiades are in a cluster just above it.*

3. Planets and Moons.—The planets are our nearest neighbors among the heavenly bodies, and are the only ones, except our sun and moon, about which anything of importance is known. They shine with a steady light and revolve about the sun like our earth, but at different distances. The time required by a planet to make one revolution about the sun is called its **year**. The planets near the sun have shorter years than those farther away, because they move more swiftly and have less distance to go.

Nearest the sun is **Mercury**, named for the messenger of the gods because of his swiftness. Next is **Venus**, the brightest of the planets, named after the goddess of beauty. Beyond the earth is **Mars**, which received the name of the war-god on account of its red color. Next is **Jupiter**, the largest planet, and hence named after the king of the gods. Most distant from the sun are **Saturn**, **Uranus**, and **Neptune**. Between Mars and Jupiter are several hundred smaller planets called **planetoids**. These cannot be seen without a telescope.

All the planets, except Mercury and Venus, have bodies revolving about them which we call **satellites**, or **moons**; these help to light up the planets at night. The earth has but one moon, but Mars has two moons, Jupiter eight, and Saturn ten. It is probable that many moons are yet undiscovered.

Phases of the Moon.—Notice the position of the **new moon** soon after sunset. Observe it for several nights at the same hour, and you will see that each night it is farther east and shows more and more of its illuminated side. At the end of two weeks it has moved entirely across the sky and appears in the east at sunset as the **full moon**. For the next two weeks it is seen later and later each night—showing less and less of its illuminated side—a half moon at the end of the third week as at the end of the first week. At the end of four weeks you may see it again in the west a thin crescent; it has revolved entirely about the earth. The time of its revolution is called a **month**. These changes in the appearance of the moon are called **phases**. By means of a telescope we may watch the revolution of other moons about their planets. The moons of Jupiter are the most easily seen.

Just as we may observe the moons revolving about their planets, so we may observe the planets revolving about the sun, only our observation must be far more careful and exact.

4. Comets and Meteors.—Besides the planets, moon, and fixed stars, there are strange fiery bodies that appear suddenly in the sky and vanish as quickly as they come. In the year 1882 a bright star appeared in the northeastern sky. As it moved along toward the sun, a fan-shaped light spread out behind it known as the **tail**. It circled about the sun and then sped away into the depths of space. Such bodies are called **comets**. As in the case of the fixed stars many comets have been seen with the telescope that are invisible to the naked eye.

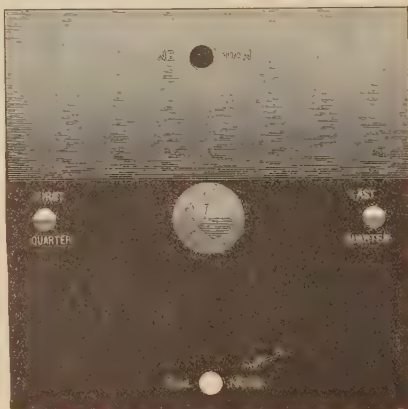
Sometimes red-hot masses of iron or stone fall upon the earth. These are called **meteorites**. About 275 of them have fallen during the last century. We do not know where they come from, but some think that they are little planets which the earth meets in its journey around the sun. During clear nights trails of light that suddenly appear and vanish are seen in the sky. These are called **shooting stars**. They are doubtless small meteors that pass through the atmosphere of the earth, but do not reach its surface.

5. The Solar System.—The sun and the planets with their moons are together called the “Solar System.” The **sun** is the center about which all other members of the system revolve. It is a red-hot mass of matter surrounded with burning vapor. The diameter of the sun is over 100 times that of the earth. This means that it would take 1,300,000 bodies the size of the earth to make up the sun. If the earth were as large as the sun, its surface would extend nearly 200,000 miles beyond the moon. An ocean steamer can sail around the earth in about fifty days;

but if the earth were as large as the sun, the voyage would take fifteen years.

From the sun all the planets and moons receive light and heat. Without this light and heat all the water on the earth would become ice. The earth would be wrapped in perpetual midnight, and every living thing, both plant and animal, would perish.

Origin of the Solar System.—It is thought by some astronomers that the sun, the planets, and moons



The phases of the moon. The sun is supposed to be above the picture in line with the earth and moon. The moon revolves about the earth in the direction shown by the arrow. Notice that when the moon is on the side of the earth opposite to the sun, we see the half of its surface that is lighted up; but when it is between the earth and the sun, only a small crescent-shaped part of the illuminated side can be seen; between these two positions half of its illuminated side, or a quarter of its entire surface, is visible.

all once formed a single mass of glowing **vapor**, which filled all the space between the sun and the most distant planet. This mass rotated on its axis just as the earth does now. As the mass cooled, the motion of rotation caused it to bulge out at the equator, and a number of rings of vaporous matter were thrown off, which afterward took on a spherical form and continued to revolve about the central mass as planets. The planets also threw off rings which became moons. The planet, Saturn, still has two **rings** revolving about it, which may be seen with the telescope. Another theory is that these rings are com-

posed of vast numbers of small individual bodies, so small that they cannot be separately seen.

The Surface of the Earth.—

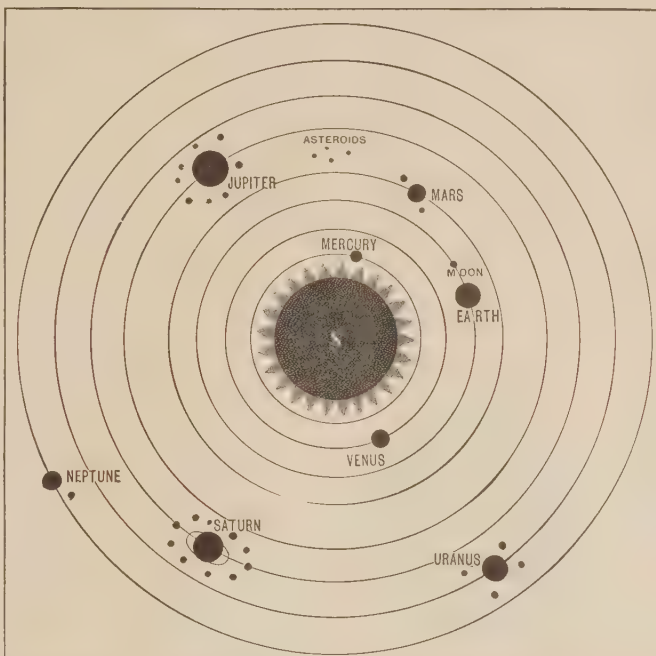
When the earth was first formed into a sphere it was intensely hot, and the waters which now form oceans and rivers floated above it in the form of vapor. But as the surface cooled, the vapor condensed into water and fell to the earth, only to be driven back again by the still heated rocks. At last the waters remained permanently upon the earth, covering the entire surface. When rocks cool from a melted condition they become much smaller. Accordingly, as the interior of the earth continued to cool it became smaller than the outer crust. This caused the crust to rise up in **folds** or **wrinkles** in the same way that a loose garment or a carpet too large for a floor will form in wrinkles or folds. The elevations thus formed were the beginning of the continents and the waters of the earth, gathering in the depressions, formed the oceans.

As soon as the land rose the waters began to take part in shaping its surface. The clouds laden with vapor were driven against the mountains, and condensed into rain; the rains began to form springs, and brooks, and rivers, which wore away the rocks and washed the loose material down to the lower levels where it was spread out as soil. In this way the plains and valleys were made. The waters of the sea, dashing against the shores, helped to grind up the rocks, and the frost and the atmosphere also took part in the forming of land.

Soon **plants** began to grow in the new soil. Their leaves and stalks decaying made the soil richer and deeper. After that **animals** appeared. First the simplest forms, such as shell-fish, corals, and sponges; then fishes, reptiles, the higher animals, and at last man.

The surface of the earth is undergoing constant change. The streams carve out valleys among the hills and mountains, and the worn-out earth material is carried away to build up plains along their lower courses, and to fill up the shallow parts of the ocean. Along the coast, capes, headlands, isthmuses, and islands are formed by the combined action of the rivers, waves, and the rising and sinking of the coast and ocean beds. In these various ways the forces of nature have gradually shaped the forms of land and water which we call **natural divisions**.

6. Divisions of Geography.—The study of the heavenly bodies is called "astronomy." So that part of geography that treats of the earth as one of the heavenly bodies is called "astronomical geography." Because this division treats of the shape and size of the earth and of measurements upon its surface, it is



The Solar System. The planets revolve about the sun in the same direction as the moon revolves about the earth, and all of their orbits or paths are nearly in the same plane. In this diagram the size of the planets is too great in proportion to that of the sun and the size of the moons too great in proportion to that of the planets about which they revolve. The relative distances of the planets from the sun are also only approximately shown.



A baked apple after cooling. The shrinkin' of the apple causes the skin to wrinkle. The height of the wrinkles and the depth of the furrows between them have about the same proportion to the size of the apple as mountains and valleys have to the size of the earth. The cause in each case is the same; that is, cooling from a heated state.

also called **Mathematical Geography**.

A second division is **Physical Geography**. This treats of the natural divisions of the earth, such as oceans, continents, islands, mountains, plains, and valleys, of the heat and moisture of the atmosphere, and of plants and animals. These two divisions of geography treat of the earth in its natural condition.

But the earth is the home of man, and man has divided it into countries, provinces, and cities. These are inhabited by different races and nations, each of which has its own customs, religion, and form of government. The branch of geography that treats of these things is called **Political Geography**.

One of the most important things that we learn in geography is how the earth is made to provide for the needs of mankind. Men engage in various occupations by which they produce the things that satisfy such needs. But since the same articles cannot be produced in all countries, the nations of the earth engage in trade to secure the things that they cannot obtain at home. That part of our subject that treats of the production of articles and the trade in them among the nations of the world is called **Commercial Geography**.

I. GENERAL DEFINITIONS.

1. Geography is a description of the surface of the earth, and its inhabitants. It is divided into Mathematical, Physical, Political, and Commercial Geography.

2. Mathematical Geography treats of the shape, size, and motions of the earth, the determination of positions and distances on its surface, and of its representation by globes and maps.

3. Physical Geography treats of the natural divisions of the surface of the earth, of climate, and the distribution of plants and animals.

4. Political Geography treats of the inhabitants of the earth, their customs and religions, their industrial pursuits, and their forms of government.

5. Commercial Geography treats of the commodities that are bought and sold by the nations of the earth, their production, transportation, and the trade in them.

Review Topics.—Fixed stars. Planets. Constellations. The zodiac. Moons. Comets. Meteors. Meteorites. The solar system. Origin of. The surface of the earth. How natural divisions were formed. Effects of moving water. Plants. Animals. Geography. Its divisions. Mathematical Geography. Physical Geography. Political Geography. Commercial Geography.

MATHEMATICAL GEOGRAPHY.

II. SHAPE AND SIZE OF THE EARTH.

1. The Shape of the earth is nearly that of a sphere or round ball. It does not appear round to us, because we see so small a part of it at a time.

Early Theories.—In ancient times it was the general opinion that the earth was flat and circular, because it *appeared* so when seen from an elevation. Ancient nations thought, and savage tribes still think, that the country of each occupies the center of the earth, because from any high point of observation the horizon is equally distant on every side.

The philosophers of ancient Greece were among the first to make observations that led them to think that the earth was round. In the middle of the fourth century B. C.

Aristotle said that travelers had noticed that when they went north or south a few hundred miles, new stars came into view before them on the horizon, while those behind them sank out of sight. This seemed to prove that they were traveling over a curved surface. Aristotle noticed also that when the earth comes between the sun and the moon, it casts a circular shadow upon the moon. This, he said, proved that the earth is a sphere, since only a sphere will cast a circular shadow in all positions.

Early Navigators thought the earth must be round, because whenever they came in sight of land, they first saw the tops of trees or the summits of the mountains, while the land beneath lay concealed from view. They also observed in watching a ship departing from shore that it gradually sinks below the horizon until the tips of the masts finally disappear.

Proofs.—These conjectures were proved to be true by the sailing of one of **Magellan's** ships entirely around the world during 1519-1522.

If a **level line** be drawn along a flat coast or out to sea, in *any direction*, the surface of the earth is found to curve away from it about eight inches in one mile, two feet and eight inches in two miles, etc. This proves conclusively that the earth is a sphere.



The earth's shadow upon the moon. When the earth comes between the sun and the moon, it casts a shadow upon the moon's surface, causing an eclipse. The outline of this shadow is always curved, showing that the complete shadow would be circular. What does this prove about the shape of the earth?



A straight line touching the surface of the water. Notice that the surface curves away from this line seventeen feet at a distance of five miles, sixty-seven feet at a distance of ten miles, one hundred and forty-six feet at a distance of fifteen miles, etc.

But, though the form of the earth is thus known to be spherical, its exact shape and size has to be determined by laborious calculation.

Actual Measurement.—From measurements made in various parts of the world, it has been ascertained that the exact figure of the earth is that of an **oblate spheroid**.

A **Spheroid** is a body like a sphere or globe. An **oblate spheroid** is a globe flattened at the poles, somewhat as an orange is at the stem, especially if it be slightly compressed between the finger and thumb. The cause of the flattening at the poles and the bulging out at the equator is the motion of rotation. If any plastic body as a ball of putty or a soft rubber ball be rotated rapidly on its axis, it will flatten at the poles. This is due to the same force that causes a stone to fly from a sling when whirled about the hand. It is sometimes called **centrifugal force**.

Since the earth is a sphere, or nearly so, some of us may wonder why it is that objects do not fall off the earth when it rotates. The reason for this is that the earth has a power of attraction, called **gravitation**, by which it draws all objects toward its center. People and things

on the opposite side of the earth are not really "upside down," because *down* is toward the earth's center and *up* is toward the sky. Hence everything on the earth is naturally "right side up."

2. Size of the Earth.—The **Circumference** of the earth, or greatest distance round it, is nearly 25,000 miles.

The **Diameter** of the earth, or distance through its center in a straight line, from any point on the surface to the point opposite, is nearly 8,000 miles. The polar diameter is $26\frac{1}{2}$ miles less than the equatorial diameter.

The **surface** of the earth contains about 197,000,000 square miles.

Review Topics.—Shape of the earth. Why does it seem flat? Give early theories about its shape. Proofs. What is the exact figure of the earth? Describe an oblate spheroid. Account for the flattening at the poles. What is gravitation? Explain the terms "up" and "down." What is the circumference of the earth? Its diameter? What is the difference between the polar and equatorial diameters? Area of its surface?

III. MOTIONS OF THE EARTH.

1. Daily Motion.—The sun is seen in the east every morning, and seems to cross the heavens and disappear in the west at sunset. The stars, in the same way, appear to rise in the east and sink in the west. This is not because the sun and stars go round the earth. They do not; they appear to do so because of the daily rotation of the earth on its axis.

Illustrations.—If an observer could watch our globe from the moon, and his eye first discern North and South America, these continents would in a few hours move out of sight; the Pacific Ocean would come into view instead; then the islands of Oceania, followed by Australia, Asia, Europe and Africa, the Atlantic Ocean, and, finally, America again.

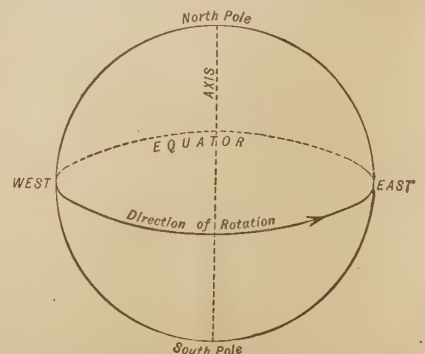
When we travel in the cars, the houses and trees that we see, seem to be moving past us, though we are really moving past them. They have an **apparent motion** opposite to the real motion of our train. So the sun and stars seem to be moving from east to west, though in reality we are moving with the earth from west to east.

Direction.—The earth is constantly turning round (rotating) in the same direction. This direction is called **east**. The diameter in which it rotates is called the **axis**.

The word "east" means *down*, and it was applied to the direction in which the earth rotates, because the first rays of the sun are seen in that direction. The direction opposite to east is called **west**.

North and South.—The earth's axis is perpendicular to a line running east and west. The directions in which it points are called north and south. Just above the North Pole is a bright star called the **Pole Star**, or **Polaris**; and we may easily find the direction at night by facing this star. The east will then be on our right, the west on our left, and south behind us. Sailors find their direction at sea by observing the North Star or by the use of the compass.

The Four Points—N., E., S., and W.—are called the **cardinal points**, that is, the **principal points**. Besides these there are other intermediate, or **semi-cardinal**



The rotation of the earth. What is the direction of rotation called? How are other directions derived from this?

points, such as northeast, northwest, southeast, and southwest.

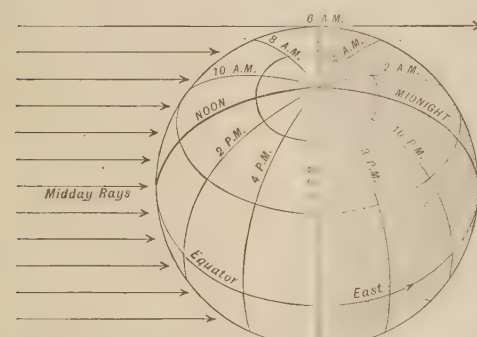
Time.—The time required for a complete rotation of the earth is called a **day**.

The day is divided for convenience into twenty-four **hours**, the hours into **minutes**, etc.

The Clock is an instrument for measuring the time of the earth's rotation. The dial is divided into twelve equal parts, and the hour hand moves twice around the dial for every complete rotation of the earth.

Rate.—The circumference of the earth at the equator is 25,000 miles. A man, therefore, near the equator moves toward the east at the rate of about one thousand miles an hour, or seventeen miles a minute.

Effects.—The rotation of the earth causes **day and night**. The word day, as here used, means daylight.



To illustrate the relation of longitude and time. The earth occupies this position at the time of the equinoxes. The sun rises and sets at 6 o'clock. The meridians are drawn 30 degrees apart. How many are there? As we go east from the meridian, where the midday rays of the sun strike, it becomes two hours later at each successive meridian; going west from the same meridian, it is two hours earlier at each interval of 30 degrees. How many degrees of longitude are equal to one hour of time? How far in degrees is it from midday to sunrise? From midday to midnight.

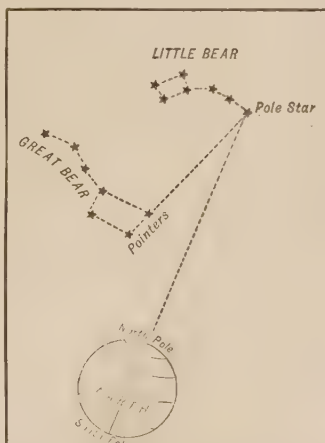
rises and midday earlier than we, and places to the west, later.

Illustration.—This may be made clear by placing a lamp or candle near the school globe. Mark on the globe the location of Liverpool, New York, San Francisco, and Honolulu. Now rotate the globe until the rays of the lamp just reach Liverpool. Remember that the direction in which we rotate the globe is called east. All places west of Liverpool are still in darkness. Continue to rotate the globe until the rays of the lamp reach New York, San Francisco, etc. Does the sun rise earlier or later at these places than at Liverpool?

2. Yearly Motion.—In addition to its daily rotation, the earth makes an annual **revolution** about the sun; this is accomplished once in every 365 $\frac{1}{4}$ days, or, more accurately, 365 days, 5 hours, 48 minutes, and 50 seconds. This period is called a **year**.

Earth's Orbit.—The path of the earth in its annual revolution is called its **orbit**. This orbit is an ellipse, but is so nearly a circle that it may be regarded as one. The earth is about 3,000,000 miles nearer the sun in winter than in summer, but the average distance from it is about 92,800,000 miles.

Regarding the orbit as a circle, we obtain its diameter by doubling



Direction of the earth's axis. The Pole star is the only one which does not change its position. The other fixed stars revolve about it once each day. The direction of the earth's axis is also fixed, since it always points toward this star.

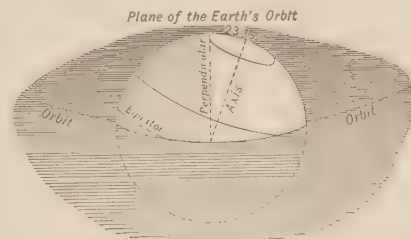
92,800,000. This diameter, multiplied by 3 $\frac{1}{2}$, gives us the distance traveled by the earth in one year. If we divide this distance by the number of minutes in a year, we shall find that, in our annual journey round the sun, we are traveling at the rate of more than a thousand miles a minute.

A Plane is a level surface like a floor.

If we imagine an immense plane passing through the center of the sun, and reaching the orbit of the earth at every point, we have an idea of what is meant by the **Plane of the Earth's Orbit**.

The **axis** of the earth is inclined to the plane of its orbit 23 $\frac{1}{2}$ °.

Illustration.—Suppose the page of this book to represent the Plane of the Earth's Orbit. Hold a pencil so that it is perpendicular to the page. It then makes an angle of 90° with it. Lower the top of the pencil half way to the page; it then makes an angle of 45°. Lower it one-fourth the distance to the page and it will represent very nearly the inclination of the earth's axis to the plane of its orbit.

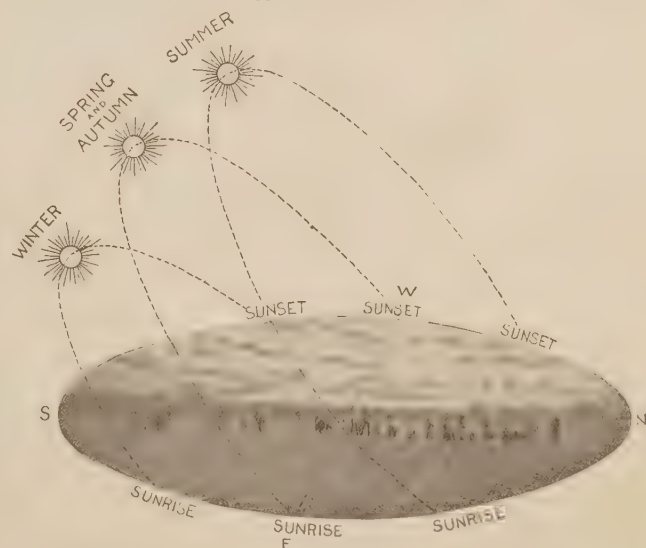


The shaded part of this picture represents a portion of the plane of the earth's orbit. The orbit is the curved path which the earth follows around the sun. Notice how much the axis of the earth is inclined toward a line that is perpendicular to the plane of the orbit.

Apparent Motion of the Sun.—The yearly revolution of the earth, combined with the inclination of its axis, has the effect of making the sun *appear* to move northward in summer and southward in winter.

The reason for this *apparent* motion will be understood by reference to diagram V, 2.

Review Topics.—Describe apparent daily motion of sun and stars. What really moves? Give illustration. What is the direction of the earth's daily motion? Time required for complete rotation? Define the axis and poles of the earth. What is the rate of the earth's rotation? What causes day and night? Why do places differ in time? Illustrate. What other motion has the earth? What is a year? Define the earth's orbit. How far are we from the sun? How fast do we travel round the sun? What is a plane? How much is the axis of the earth inclined? Describe the apparent yearly motion of the sun.

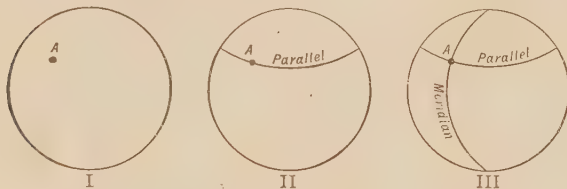


This picture shows the height of the sun above the horizon at the time of the solstices and the equinoxes. The dotted lines show the path of the sun through the sky and measure the length of the day at each of these periods. Notice that the sun rises in the true east and sets in the true west at the time of the equinoxes (see p. 12). At the winter solstice it rises and sets south of the east and west points; at the summer solstice it rises and sets north of them.

IV. LATITUDE AND LONGITUDE.

1. **The Position** of places on the earth is described by means of circles supposed to be drawn upon its surface.

Every place is supposed to have two such circles, one running north and south, called the **meridian** of the place, the other running east and west, called its **parallel**. Try to describe the position



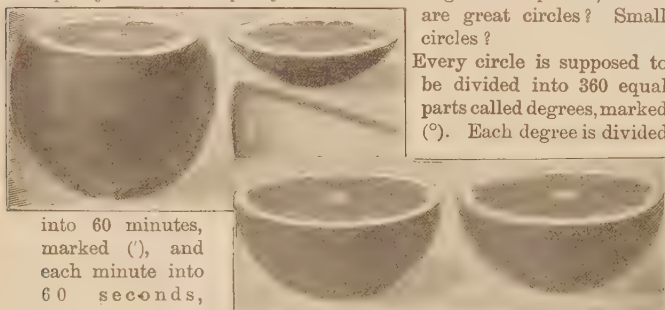
The use of parallels and meridians in fixing the location of places.

of the dot A on the surface of globe I; it cannot be done because there is no place to measure from. On globe II we may say the dot A is on a certain parallel. But this parallel runs all the way around the earth. Let us draw also the meridian of A; we may see now that the dot is at the intersection of the two circles.

2. A **Great Circle** is any circle that divides the globe into two equal parts or hemispheres.

3. A **Small Circle** is any circle that divides the earth into two unequal parts.

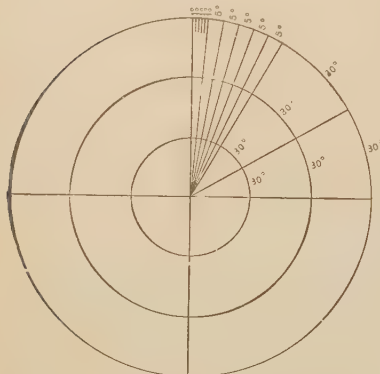
Suppose two oranges be cut as shown in the picture; which is divided equally? which unequally? Examine the edges of the pieces; which are great circles? Small circles?



Every circle is supposed to be divided into 360 equal parts called degrees, marked ($^{\circ}$). Each degree is divided

into 60 minutes, marked ($'$), and each minute into 60 seconds, marked ($''$).

Since all circles contain the same number of degrees, it is evident that the length of a degree will depend on the size of the circle of which it is the $\frac{1}{360}$ part. This will be made clear by a study of the accompanying diagram.



Three circles drawn from the same center having parts of their circumferences divided into degrees. One fourth of a circle contains ninety degrees and is called a quadrant. Any portion of a circumference is called an arc. Compare the lengths of arcs of thirty degrees in the three circles. Which circle has the longest arc? Which the shortest? Notice that each arc on the circumference corresponds to an angle at the center having the same number of degrees.

4. The **Equator** is a great circle passing round the earth midway between the poles. It divides *equally* the surface of the earth. Hence its name.

5. **Latitude**.—Distance north or south of the Equator is called Latitude. It is expressed in degrees ($^{\circ}$), minutes ($'$), and seconds ($''$).

Places on the equator have no latitude. No place can have more than 90° of latitude, for no place can be farther from

the Equator than the Pole is. Places north of the Equator are in **north latitude**, those south of it, in **south latitude**. The degrees of latitude are numbered on the sides of maps.

Those regions of the earth lying near the Equator are sometimes called **low latitudes**. **High latitudes** are those near the poles.

6. **Parallels of latitude** are small circles that pass round the earth parallel to the Equator.

The lines that are drawn from east to west across maps are **parallels of latitude**. East and west distances are measured along these lines.

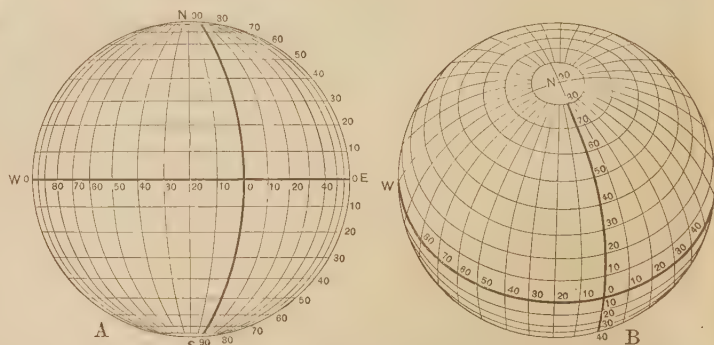
7. The **Tropics** are small circles parallel to the Equator, and $23\frac{1}{2}$ degrees from it. The northern circle is the **Tropic of Cancer**; the southern, the **Tropic of Capricorn**.

Tropic is derived from a Greek word meaning to turn. The Tropics mark the farthest points north and south of the Equator that have the sun directly overhead. They are so named because the sun in his annual course appears to turn on reaching a point directly above these circles and to move in the opposite direction (see V, 4).

8. The **Polar Circles** are small circles $23\frac{1}{2}$ degrees from the poles. The one drawn about the North Pole is the **Arctic Circle**; the one about the South Pole is the **Antarctic Circle**.

The length of the days and of the nights within these circles varies from 24 hours to six months. On the circles themselves the extreme length is 24 hours. This increases to six months at the poles. This will be seen from a study of diagram on page 12.

9. **Meridian Circles** are great circles that pass through the poles. They are used on maps and globes to mark off into

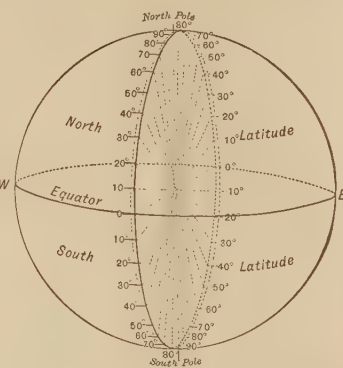


Meridians and parallels drawn upon a globe. The heavy meridian in A passes through Greenwich. Degrees of latitude are marked along the 70th meridian; degrees of longitude are marked below the equator. In B the globe is turned so that parallels may be seen running entirely around the globe. Notice that they become smaller and smaller as they approach the pole, where the length of a degree of longitude (that is, $\frac{1}{360}$ of a parallel) becomes zero.

equal portions the entire distance east and west round the earth on any parallel.

10. A **Meridian** is half a meridian circle. It extends from pole to pole.

Meridian means midday. As the sun reaches each meridian, it is noon at all places through which that meridian passes from pole to pole.



A meridian circle divided into degrees. Which part of this circle is used to measure north latitude? Which south latitude? What is half of a meridian circle called?

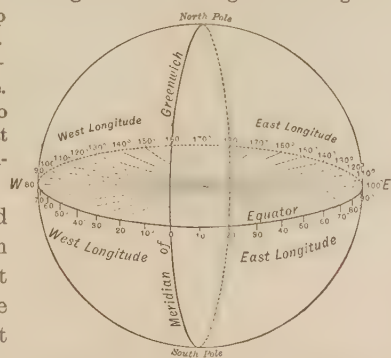
There is no limit to the number of parallels, meridians, and meridian circles that may be drawn upon the globe. In fact, every place on the earth has its own meridian and parallel which may be found by careful computation.

11. Longitude.—Distance east or west of a given meridian is called Longitude. It is expressed in degrees ($^{\circ}$), minutes ($'$), and seconds ($''$). Longitude is reckoned from the **Prime, or First Meridian.**

A **Prime Meridian** is any meridian from which a nation may choose to reckon longitude. The International Meridian Conference, which met in 1884 at Washington, recommended that the **Meridian at Greenwich, England,** be adopted as the Prime Meridian for all nations.

If a place is east of the prime meridian, it is in **East Longitude**; if on the west, it is in **West Longitude.** The degrees of longitude are numbered on the top and bottom of maps. Places on a prime meridian have no longitude. [The Poles also have no longitude, as they are at the place where all meridians meet.]

Longitude is measured on the equator and on parallels of latitude east and west from the prime meridian. Notice that east longitude and west longitude meet at 180° , which is the greatest distance from the prime meridian that any place can have.



The equator divided into degrees of longitude.

Length of Degrees.—As all the meridians meet at the poles, and diverge or spread out thence till they reach the equator, the distance between any two varies with the latitude. Therefore a degree of longitude is greater at the equator than it is either north or south of it.

A degree of longitude at the equator is nearly 69.2 miles; degrees diminish in length until the pole is reached, where there is no such thing as longitude.

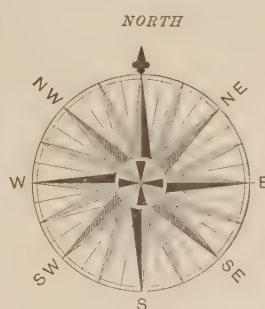
Length of a Degree of Longitude measured on every 10th Parallel of Latitude.

Lat.	Miles.	Lat.	Miles.	Lat.	Miles.
0°	69.19	30°	59.0	60°	34.5
10°	67.9	40°	52.3	70°	23.6
20°	65.0	50°	44.4	80°	11.9

If the earth were a perfect sphere, a degree of latitude would be everywhere of just the same length; but owing to the flattening of the earth, it is $\frac{1}{7}$ of a mile longer at the poles than at the equator; at the equator it is half a mile less than a degree of longitude, while at the poles it is $\frac{1}{2}$ of a mile more. Practically, a degree of latitude may be regarded as everywhere equal to $69\frac{1}{2}$ miles.

12. The convenience of using latitude and longitude at sea may be readily shown.

Suppose a whaling ship in the Pacific Ocean wishes to sail for Honolulu in the Hawaiian Islands. By making an observation of the sun the captain finds that his latitude is 40° north, and by consulting the ship's chronometer, or clock, he finds his longitude to be 135° west. By examining his chart of the Pacific Ocean he marks his exact position, and finds that Honolulu lies to the southwest. He accordingly steers by the compass in that direction.



Mariner's Compass.

The boundaries of states and countries are frequently parallels and meridians, as these may always be easily found.

Review Topics—Position of places on the earth. Great circle. Small circle. How are circles divided? Equator. Why so called? Latitude. How much latitude can a place have? How little? Parallels. The tropics. Polar circles. Meridian circles. Meridians. Longitude. A prime meridian. How much longitude can a place have? How little? Are degrees of longitude all of the same length? Do degrees of latitude vary in length? How long are they? Explain the use of latitude and longitude. The Mariner's compass. Its use.

V. CHANGE OF SEASONS.

1. Inclination of the Earth's Axis.—The axis of the earth is inclined to the plane of its orbit, just as the axis of a top often inclines toward the floor when it begins to spin upon it.

The top spins round on its axis, and at the same time may travel round some point on the floor. It has thus two motions.

In like manner the earth turns round on its axis in daily rotation, and, at the same time, travels round the sun in yearly revolution.



A top spinning and moving about a point.

When a top is first thrown, it will often move around some point with its axis inclined, as shown in the picture. Imagine the top spinning in space and moving about in a circle, and you will have a correct idea of the rotation and revolution of the earth.

There is this difference between the earth and the top; the top inclines more and more as its spinning slacks, but the earth **never slacks its rate**, and the **inclination of its axis** is always the same. It inclines from the perpendicular at the constant angle of $23\frac{1}{2}^{\circ}$; and the north pole constantly points toward the north star.

If the earth's axis were perpendicular to the plane of its orbit, the sun's rays would come from the same direction throughout the year; as a result of this, the days and nights would be of equal length all the year, and there would be no change of seasons. The frigid zones would have perpetual winter, the temperate zones perpetual spring; in the torrid zone the climate would be uniformly hot throughout the year. Just as this position of the axis would result in a uniform temperature throughout the year in each latitude, so it would make the winds and rainfall uniform throughout the year.

2. Effect.—The inclination of the axis of the earth, combined with its revolution in its orbit, **causes the seasons**; for when the earth is in one part of its orbit, the north pole is turned toward the sun; and when in the opposite part, the south pole is turned toward the sun.

3. Equinoxes.—Twice every year day and night are equal in length. These times are called the Equinoxes (*æquus, equal; nox, night*). They mark the seasons of spring and autumn.

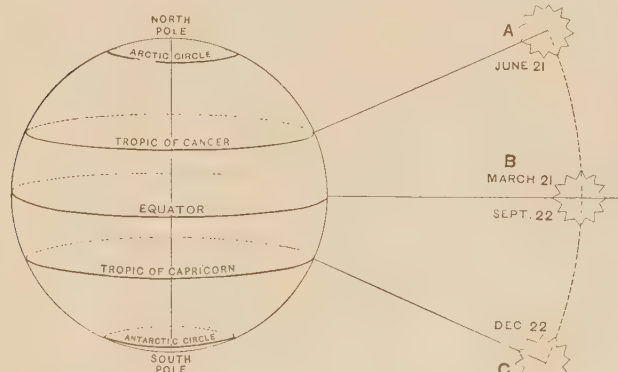


Diagram to illustrate the apparent motion of the sun north and south of the equator. (Compare with figure on page 9.) When the sun is at B its rays are perpendicular to the equator, and the days and nights are equal all over the earth. When the sun is at A its rays are perpendicular to the Tropic of Cancer, the northern hemisphere has summer, and the southern, winter. At C the rays are perpendicular to the Tropic of Capricorn, and the seasons are reversed.

In passing northward from C to A, the sun crosses, or is opposite to the Equator at B. This happens on the 21st of March every year. On that day the sun sets at the south pole and rises at the north pole. At all other places it rises and sets at six o'clock; consequently the day and night are then equal: this is the **Vernal or Spring Equinox**. Six months afterward—on the 22d of September—as the sun returns from the Tropic of Cancer to the Tropic of Capricorn, it again crosses the equator.

He now sets at the north pole and rises at the south. Day and night are again equal; and this time is called the **Autumnal Equinox**.

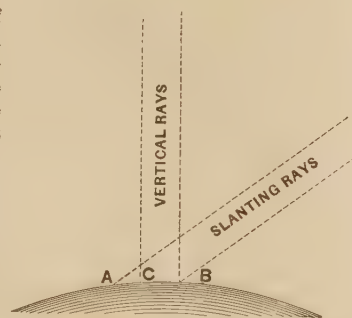
4. Solstices.—When the sun in his apparent journey reaches the most northerly point in summer, and the most southerly in winter, he appears to *stand still* for several days.

One of these “*stand-still*” places is called the **summer solstice**, the other the **winter solstice**.

Summer Solstice.—On the 21st of June the sun reaches the summer solstice, or northern limit of his journey. He is now $23\frac{1}{2}^{\circ}$ north of the equator, on the Tropic of Cancer. At noon, therefore, his rays are vertical (directly overhead) to all places on or near that tropic. Consequently in all places north of the equator it is the **warm season** of the year.

Winter Solstice.—On the 22d of December the sun reaches his other solstice at the Tropic of Capricorn. He is now vertical at noon to all places on or near that tropic; and the southern hemisphere has summer.

But at this time the rays of the sun fall slantingly, and therefore feebly, on the northern part of the earth, because (as seen in the diagram of the Orbit of the Earth) that part now leans away from him. Therefore we in the northern hemisphere have now cold weather, and we call the December solstice the **winter solstice**. Having reached the winter solstice, the sun turns again toward the north.



To illustrate why slanting rays of the sun heat the earth less than vertical rays. In the figure the vertical rays fall upon a surface represented by C B. The same number of rays striking the earth in a slanting direction are spread over twice as much surface, namely A B. It is clear that the rays when concentrated would be hotter.

5. Seasons.—Thus the year is divided into seasons, and the seasons on the two sides of the equator are opposite; that is, when it is winter with us in the northern part of the earth, it is summer with the people on the southern side of the equator.

Review Topics.—Illustrate the inclination of the earth's axis. How is the earth like a spinning top? How does it differ from the top? What is the effect of the inclination of the earth's axis? How often are day and night equal every year. What are these times called? What seasons do they mark? Explain the vernal equinox. The autumnal equinox. The solstices. When do they occur? Summer solstice. Winter solstice. What is said of the seasons?

VI. THE ZONES.

1. Zones.—The Tropics and the Polar Circles divide the earth's surface into five great belts or zones which differ in temperature. They are called the **Torrid**, the **North Frigid**, the **South Frigid**, the **North Temperate**, and the **South Temperate Zones**.

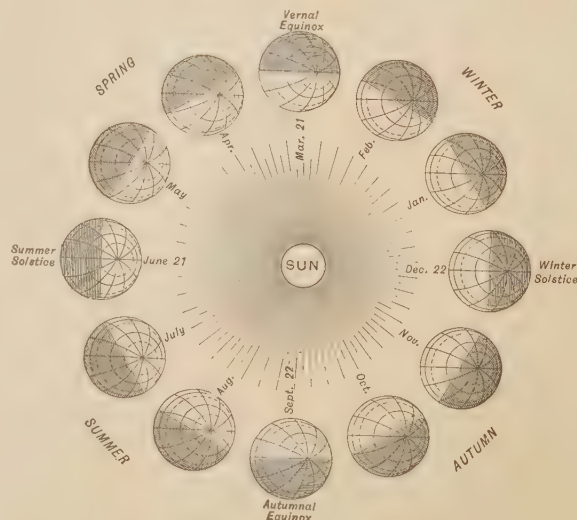
2. The Torrid Zone.—The belt between the two Tropics is the **Torrid Zone**. It is 47° wide. It embraces two-fifths of the entire surface of the earth. This is the **tropical region**.

The sun is vertical twice a year to all places within these regions, and there is no cold weather; the people do not, as a rule, even build chimneys to their houses. The year is usually divided into two seasons, the **rainy** and the **dry**, corresponding to our summer and winter.

The sun is never vertical to any place north of the Tropic of Cancer, nor to any place south of the Tropic of Capricorn.

3. The Frigid Zones.—The space that lies between the Arctic Circle and the north pole is the **North Frigid Zone**. The **South Frigid Zone** is between the Antarctic Circle and the south pole. Each of these zones is circular in shape, having a radius of $23\frac{1}{2}^{\circ}$. The summers are short, and the winters long and

severe. As we approach the poles, the days in summer become longer and longer, till at the poles there is but one day and one night during the whole year, each being six months long.



Illustrating the position of the earth with reference to the sun during each month of the year. Notice that half of the earth is always lighted up. At the equinoxes the parallels of latitude are divided equally between light and darkness, showing that the days and nights are equal. At all other times the parallels are divided unequally, showing that the days and nights are unequal in length. Take any parallel, trace it around the circle and note how the length of the day changes in each month. Notice also how the change of seasons depends upon the direction in which the sun's rays strike the earth. On June 21 the North Pole is turned toward the earth and the northern hemisphere has summer. What is true about the seasons on December 22?

To an observer at the pole the sun has no rising and setting as we understand these terms. About March 21 its first rays appear. Following the horizon it makes a complete circuit of the sky every twenty-four hours, rising spirally for three months until it reaches a height of $23\frac{1}{2}^{\circ}$. This is at the time of the summer solstice. It then descends as it rose, disappearing below the horizon September 21, and the long polar winter begins. As the sun sinks only $23\frac{1}{2}^{\circ}$ below the horizon, it does not become entirely dark in the Frigid Zones, but twilight prevails through the long winter.

At the time of the Vernal Equinox, when the season for its return draws near, the inhabitants of these icy lands anxiously look for it, and climb the mountains to catch a glimpse of its earliest beams. From this time (March 21) until September 22, when the sun again reaches the equator, there is uninterrupted daylight at the pole.

These circumstances of day and night occur in reversed order in the South Frigid Zone.

The larger part of the area of these zones has never been visited by man, and we do not know whether it consists mostly of land or of water.

4. The Temperate Zones.—The region between the Tropic of Cancer and the Arctic Circle is the **North Temperate Zone**. That between the Tropic of Capricorn and the Antarctic Circle is the **South Temperate Zone**. Each is 43° wide.

In the temperate zones the year is divided into the **four seasons**—spring, summer, autumn, and winter.

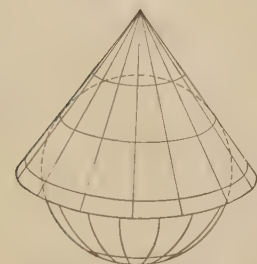
A little more than half the earth's surface is contained in these two zones. The North Temperate Zone is the one in which we live. All parts of the United States, except the northern portion of Alaska and our Island Regions (see p. 82), lie within it.

VII. GLOBES AND MAPS.

1. A Globe is the most natural representation of the earth because it is round.

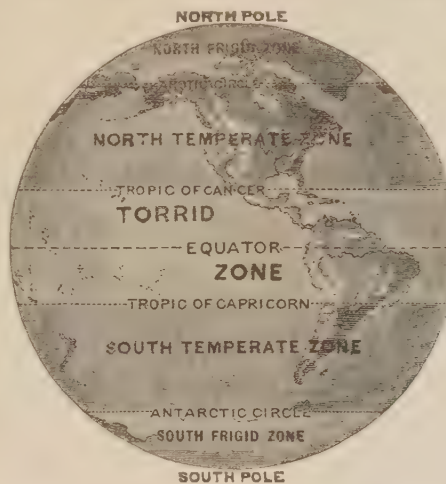
Upon its surface may be drawn the divisions of land and water and the earth's circles.

2. Maps are representations of the earth on a flat surface and are more convenient than globes. By means of maps, continents, countries, and smaller sections of the earth's surface may be represented of any size or *scale* desired.



Showing how a map is made by conical projection.

The maps used by navigators are made upon the plan invented by Mercator, a native of Belgium.



Map of the hemispheres, showing the zones and their boundaries.

In **Mercator's Projection** the map surface is a hollow cylinder inclosing the globe. The equator and parallels are then drawn upon the cylinder in their proper latitude, and the meridians become straight lines running from top to bottom. All other lines are drawn according to the parallels and meridians thus obtained. The cylinder is then cut open and spread out. The result is a map similar to that on pp. 166-167. It will be noticed that since the cylinder touches the globe at the equator, that circle will be

represented at its true size; but as the parallels of latitude are all the same size as the equator, the map will represent places in high latitudes much too large.

Mercator's chart distorts the surface it represents, as every chart must do that attempts to represent on a plane the surface of a sphere; but it distorts in such a manner as to make all places on it preserve their true course from each other. This also makes it easy to take their true distance apart.

The light shading indicates the highland regions of the earth.

All maps in this book, except the two named above, are made either by **Conical Projection** or by **Spherical Projection**. These methods give maps which are most nearly like the countries themselves. As shown in the figures, a cone or sphere is supposed to touch the globe at the parallel which is in the center of the country to be mapped. The map is then obtained in the same manner as Mercator's projection.

Direction is shown on all maps by meridians and parallels. Distances are found by a **scale of miles** attached to each map which usually shows the equivalent in miles of a line one inch long drawn on the map.

Review Topics.—A globe. How may it be divided? Maps. How can we make a map of the world? What part of the map is north? South? East? West? For what is a "scale of miles" used? Who was Mercator? His charts. Other methods of making maps.

PHYSICAL GEOGRAPHY.

VIII. NATURAL DIVISIONS OF THE EARTH.

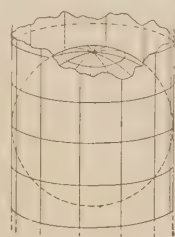
1. Land and Water.—The surface of the earth is composed of *land* and *water*.

The land forms about one-fourth of the earth's surface; the water about three-fourths.

2. Divisions of Land and Water.—**Bodies of land** are classified, according to size, as Continents and Islands. Certain portions of these are classified, according to form, as Capes, Peninsulas, and Isthmuses.

Portions of land are classified according to variations of surface, as Mountains, Hills, Plateaus, Plains, and Valleys.

Bodies of water are classified as Oceans, Seas, Gulfs, or Bays, Sounds, Straits, Lakes, and Rivers.



Showing how Mercator's chart is made.

IX. THE FORMS OF LAND.

1. Continents.—There are six large masses of land called continents, viz., **North America, South America, Europe, Asia, Africa, and Australia.** Since Europe and Asia form a single land mass, they are often described as one continent under the name **Eurasia.**

2. An Island is a body of land that is surrounded by water, as **Cuba, Madagascar, New Guinea.**

A group of islands is sometimes called an **Archipelago.**

Islands are divided into two classes, **continental** and **oceanic islands.** **Continental Islands** are those that lie near the continents, from which they are separated by shallow seas.

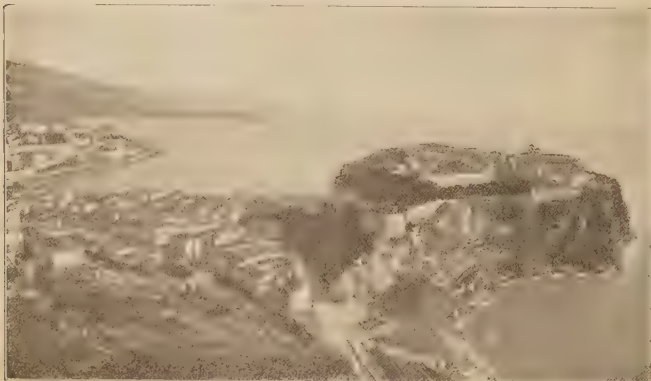
They are supposed to have once been a part of the continents and to have become separated from them by a sinking of the land. This allowed the water of the ocean to overflow the low places, thus leaving some of the higher elevations along the coast surrounded by water. The plants, animals, and rocks of the continental islands resemble those of the continents near which they lie.

Oceanic Islands lie at a distance from the continents and are surrounded by deep water. They are either **volcanic** or **coral islands.**

3. A Peninsula (*pane*, almost; *insula*, island) is a portion of land that is *almost* surrounded by water.

Florida is a peninsula, Arabia is a peninsula, Portugal and Spain together form a peninsula.

4. An Isthmus is a narrow neck of land connecting two larger bodies of land, as the Isthmus of Panama.



A small peninsula, promontory and cape. This is Monaco, on the Mediterranean coast. The coast line beyond the peninsula curves in, forming a small bay on which the city of Nice is built.

Many important isthmuses are cut by canals to enable ships to pass between the bodies of water on either side of them.

5. A Cape, Point, or Headland is the extreme end of any land projecting into the water, as **Cape Hatteras, Cape Horn.**

A high cape or headland is called a **promontory.** The Lizard at the southwestern end of England is a **point.**

6. A Coast or Shore is that part of the land bordering upon the water.

The character of the **coast-line** is constantly changing. The waves wear away the rocks, crumbling them to sand, and the tides and currents distribute it in **beaches** and **flats** along the shore and at the mouths of rivers.

Changes in the level of the land are more easily seen at the seashore than inland. By the sinking

of the coast, the mouths of streams are deepened, forming **fjords** and **estuaries**, thus affording excellent harbors. A rising coast, however, brings the level sea bottom to the surface, forming **coastal plains**, but destroying the harbors entirely or

making them too shallow for large vessels.

So important is the coast to a commercial country that governments spend large sums of money in deepening harbors, erecting **lighthouses**, and **signals**, maintaining **life-saving stations**, in making maps of the coast showing depth of water and channels, thus providing for the safety of ships and sailors and for the security of merchants against loss.

7. Mountains are high elevations of land. A **mountain range** consists of a series of mountains. A number of ranges extending in the same general direction is called a **Mountain System.** **Hills** are lower elevations than mountains.

Mountain ranges were formed by the crumpling up and folding of the rocky layers of the earth's crust, as it contracted to fit the shrinking interior. These folds were pushed up higher and higher by a gradual rising of the land. As they were being raised by forces within the earth, the rain, streams, the atmosphere, and ice were wearing away the softer parts of the surface, leaving the harder rocks standing out in sharp peaks with narrow valleys between them. This is the second stage of mountain making. In the last stage the ragged outlines are worn down and the valleys gradually filled.

How mountains affect man.—Mountains are barriers to travel, and often serve as boundaries to countries, keeping people from

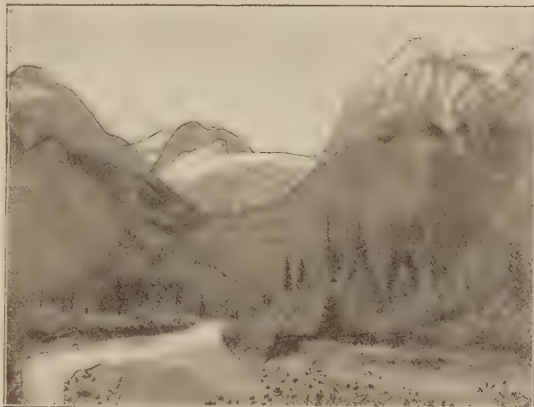


Montauk Point, the eastern extremity of Long Island, showing lighthouse and life-saving station.

spreading into the regions beyond. They are sometimes crossed by **gaps, or passes**, which become important highways of travel and trade. They are usually covered with forests, making a home for animals valuable for their flesh and skins. The fractures in the rock layers of mountains have often been filled with minerals containing gold, silver, copper, and other metals. Such deposits are called **veins**.

The height of mountains is always reckoned from the level of the

sea. We can measure the height of a mountain by means of a barometer. At the sea-level the quicksilver in the tube of the barometer stands at the height of 30 inches. Now as the barometer is taken up above the sea, the quicksilver will fall in the tube about one-tenth of an inch for every 60 feet of perpendicular ascent.



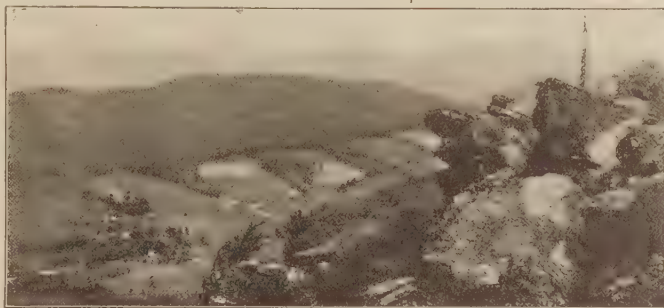
View of the Rocky Mountains in Canada. These, like the Alps, are young mountains. Thousands of years will be required for the rain and the atmosphere, the ice and frost, to wear down their ragged outlines and to fill up the narrow valleys. Notice the change in vegetation from the foot of the mountains to their summits. At the base one sees flowering plants and trees of considerable height. But as we ascend we find the trees dwarfed and vegetation scanty, until at the tops the mountains are clothed with snow and ice.

8. A Volcano is an opening in the earth through which issue

steam, vapors and gases, heated stones, and lava, or melted rock. These materials build up a cone-shaped mountain around the opening which is usually bowl-shaped and is called the crater.

Volcanoes are the best proof that the interior of the earth or parts of it are in a highly heated condition. The cause of the explosions that accompany the eruptions of volcanoes is the sudden formation of steam caused by water finding its way to the heated rocks.

Volcanoes are usually situated near the coast line. There is a remark-



Allegheny Mountains in Virginia. These mountains are crumples in the earth's crust and were once much higher, but they are very old. They have been worn down during the ages that have passed, and their tops rounded off by rain and snow, rivers and streams.



Allegheny Mountains in Pennsylvania. These mountains were not broken into sharp ridges when the earth's surface contracted, but the horizontal layers of rock were raised slowly, with very little crumpling, forming at first a plateau, out of which the mountains which we see there to-day have been carved by streams and other physical agencies. Their tops, however, are nearly on the same level. Such a mountain region is sometimes called a dissected plateau.

able series of them extending from Tierra del Fuego to Alaska. The most active volcanic region in the world is in the East Indies.



The Alps. As the thick layers of rock were slowly crushed together by the contracting of the earth's crust, they crumpled and tilted up along certain lines. As they rose higher, the high peaks which you see here were formed. These are young mountains. We can tell this by their sharp and rugged peaks and by the fossils (remains of animal life) found there. They are still slowly rising, but their tops are being worn down by physical agencies.

Java is the center of it. This island has twenty-one active volcanoes. Sometimes great injury is caused by volcanoes. Eighteen hundred years ago the cities of **Herculaneum and Pompeii**, in Italy, were covered with ashes thrown from Mt. Vesuvius. In 1906 Vesuvius destroyed several towns at its base.

When a volcano ceases to have eruptions, and is in progress of extinction, it often sends out sulphurous gases, and deposits sulphur in large quantities; it then becomes a **solfatara**.

9. A Plateau, or Table-land, is an elevated plain, often broken or bordered by ranges of mountains.

The term **Highland** is often used to designate a region of considerable elevation. It may contain lofty mountain ranges; as the Pacific Highland in North America.

10. A Plain is a broad extent of nearly level land.

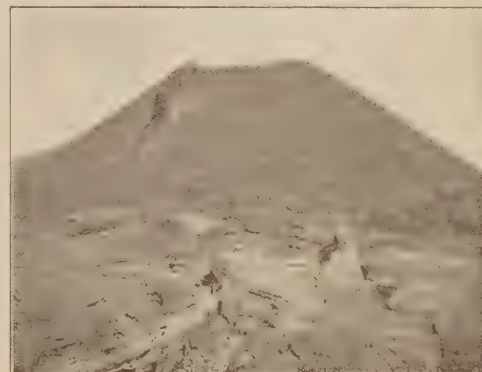
In North America, the immense plains of the Mississippi Valley are called **prairies**. In South America similar plains are called **llanos** (lyah'nos), **pampas**, or **selvas**; and in Russia and Asia, **steppes**.

11. A Valley is the land lying between hills or mountains, or between ranges of mountains.

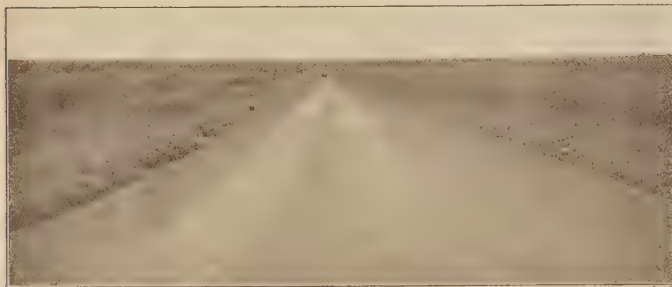
12. Deserts are wide wastes of land, sometimes flat and sandy, sometimes hilly, or mountainous, and generally destitute of vegetation and water.

An oasis or fertile spot in a desert, is made so by springs which come up to the surface.

Review Topics.—Define continent; island; continental islands; oceanic islands; peninsula; isthmus; cape; promontory. What are mountains? Ranges? Mountain systems? Hills? What is a volcano? A crater? What is a plateau? A highland? A plain? What is a valley? What are deserts? What is an oasis?



The cone surrounding the crater of Mt. Vesuvius, Italy, showing the lava beds, out of which the mountain is partly built.

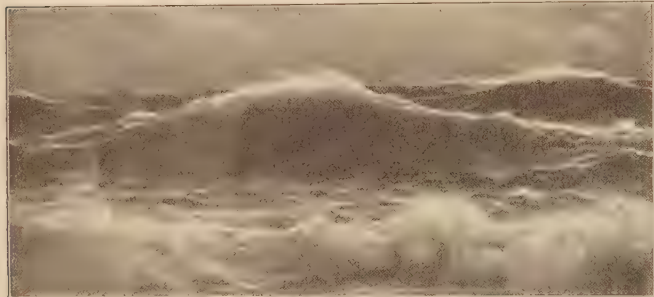


A *prairie* in northern Texas. This land was formed, under water, of materials washed down from the mountains by streams and spread out evenly over the ocean bed.

X. THE WATER.

1. **The Sea** is the vast body of salt water which covers about three-fourths of the globe. It is really *one* body surrounding the continental land masses on every side, but is divided by them into five oceans, known as the **Pacific**, the **Indian**, the **Atlantic**, the **Arctic**, and the **Antarctic**.

Waves.—The surface of the ocean is continually broken into waves and ripples by the wind. Waves are really a movement of the water up and down; but this movement, once started, spreads until the waves break upon shores hundreds of miles away. Waves vary in height from a few inches to fifty feet or more. As they approach the shore, the lower part is held back by friction against the sea bottom, while the top plunges forward as a **breaker**. This constant plunge of breakers against rocky shores undermines the cliffs and grinds the broken fragments to sand and pebbles. This



The ocean. The ocean once covered the entire surface of the earth. Then its water was fresh. When land (then solid rock) appeared, the waves began to wear the rock down and spread the ground-up rock material over the ocean bed. This work has been going on ever since.

sand is partly spread out over the ocean bottom by currents and partly washed back upon the shore, forming beaches that slope gently outward into deep water. The arrangement of the sand depends upon the direction of the ocean currents that flow along the coast.

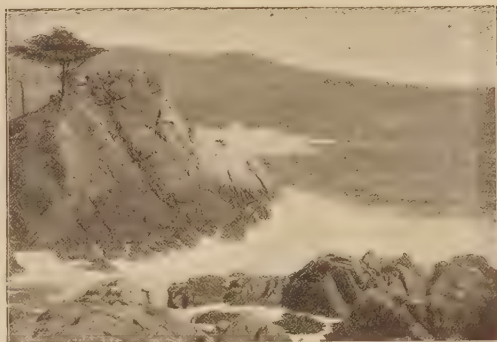
Along the middle and south Atlantic coast of the United States it is piled up in long beaches parallel with the shore. The still water between these beaches and the shore is known as a **lagoon**. Such lagoons are often filled by sediment brought down by rivers and become salt marshes or meadows.

When the sand is deposited across the mouth of rivers it is called a **bar** and becomes a hindrance to navigation. When a sandy beach forms at right angles to the coast it becomes a **spit**. When curved, the spit becomes a **hook**.

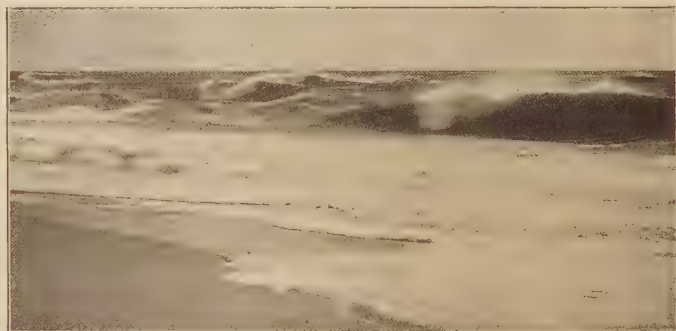
Tides.—Everywhere along the seashore and in the mouths of rivers that flow into the sea, we may observe the regular rising and falling of the water called the tides.

For six hours the water rises, and it is then

high, or **flood**, tide; it then falls for six hours and then we have **low**, or **ebb**, tide. High tide occurs at any place when the moon is either over that place or on the side of the earth opposite it. Hence we infer that the tides are caused by the **attraction** that the moon has for the water. During one complete rotation of the earth, each place would come once underneath the moon. But the moon is also moving around the earth in the same direction as the earth rotates. Hence each place is brought underneath the moon, and high tide occurs about fifty minutes later each day.

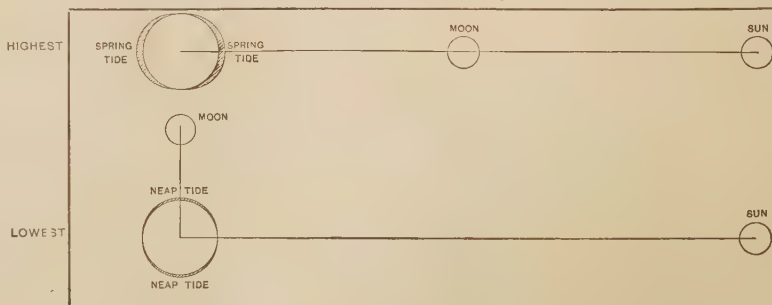


The ocean beating against the rocky cliffs, showing how the waves break off pieces of rock and grind them into small grains of sand.



A beach, showing breakers rolling up upon the sand. The lower part of the waves, as it reaches shallow water, is checked by friction against the bottom, while the upper part rolls forward and breaks on the beach. The smooth beach shows how the action of the waves levels surfaces.

The **Sun** also attracts the water, but less than the moon because it is so much farther away. When the sun and moon are attracting the water in the same direction, the highest, or **spring tide** occurs; but when they are attracting it at right angles to each other, we have the lowest or **neap tide**. The height of the tide varies from a few inches off headlands to sixty feet in inlets with converging shores. The high tide enables ships to pass in and out of harbors that are usually too shallow on account of sand bars that form at their mouths.



Showing how the highest and lowest tides are caused. When the sun and moon are in a straight line with the earth, they attract the water in the same direction, and the highest tides occur. The second view shows the sun and moon at right angles with each other. Since each draws the water toward itself, it is evident that the tide will be lower than when both are attracting the water in the same direction. The result is the lowest or neap tide.

2. **A Bay, Gulf, or Sea**, is a sheet of water partly surrounded by land; as the Red Sea, Hudson Bay, the Gulf of Mexico. Some bays are called **bights**; as the Bight of Benin.

3. **A Strait, Pass, or Passage**, is a narrow channel that connects two larger sheets of water; as the Strait of Gibraltar.

4. **A Sound** is a passage of water or strait not having much depth; as Long Island Sound.

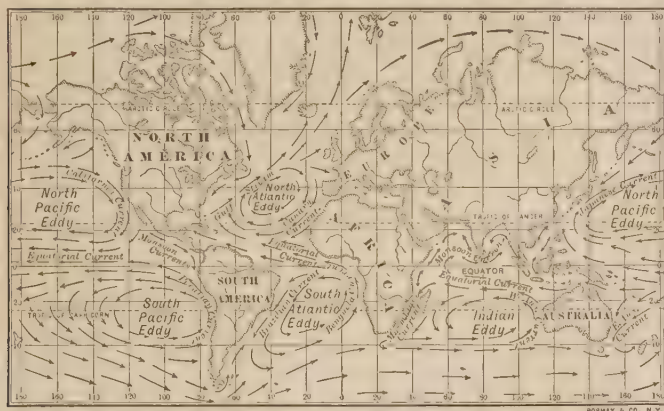
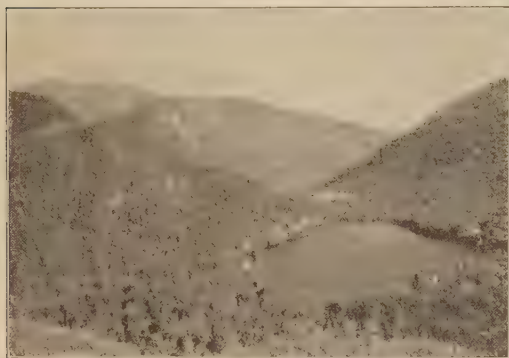


Chart showing the circulation of the waters of the ocean. Study the location and direction of the different currents. Notice that in the equatorial regions the general direction of the currents is eastward. In the temperate regions, it is westward. Compare with the directions of the winds in chart on page 18.

5. An Ocean Current is a stream flowing through the ocean, such as the Gulf Stream.

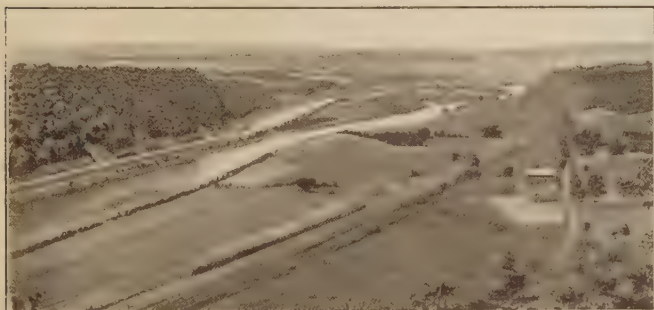
Ocean Currents seem to be mainly caused by the winds. The fact that they move in the same direction as the wind and change their courses when the wind changes,



Echo Lake, in the White Mountains of New Hampshire. A dam was built across the narrow valley with boulders from a glacier which imprisoned the waters and formed this lake, which is fed by springs.

is proof of this. The equatorial currents are driven west by the trade winds. Striking the shores of the continents they are deflected to the northeast and circle about the regions of tropical calms in **whirls and eddies**. Notice the direction of these eddies in each hemisphere and compare with the direction of the winds.

Warm and Cold Currents.—Ocean currents are important equalizers of temperature. The equatorial currents move toward the polar regions and are **warmer** than the neighboring waters, while the polar currents moving toward the equator are **colder** than the waters near them. Hence the winds blowing over these currents are either



Valley of the Mohawk, New York.

heated or cooled, and as they pass over the bordering coasts they give to them their own temperatures.

The **Gulf Stream** originates in the great Equatorial Current of the



A sugar plantation in Louisiana. This is also a picture of material brought from the mountains by the Mississippi river and its tributaries. When the river overflowed its banks this material was deposited and a plain was gradually built up. Land formed in this way is called alluvial land, or a flood plain. On the map of Louisiana, page 59, you can see how the Mississippi river is using the material which it brings down to build up land at its mouth.

Atlantic. The temperature of its waters, as they pass the Strait of Florida, is often as high as 85° Fahr.

They cross the Atlantic, carrying with them sufficient warmth to give the Orkney Isles, in latitude 59° north, an extraordinarily mild climate.

6. A Harbor is a sheltered arm of the sea where ships may anchor and ride in safety.

INLAND WATERS.

7. A River is a stream of fresh water formed by the union of smaller streams, which are called **branches or tributaries**.



Wide river valley in Virginia.

The **source** of a river is the place where it begins. This may be a spring, a lake, or a glacier. Sometimes a river is formed by the confluence of two other rivers as in the case of the Ohio. Its **mouth** is the place where it flows into some larger river, into a lake or the sea. The **bed** of a river is the land over which its waters flow.

The **right bank** of a river is that bank which would be on our right hand if we were going down the stream. The other is the **left bank**.

8. A river and its tributaries together form what is called a **river system**.

9. The **basin or valley** of a river is the country through which the river and its tributaries flow.

As rivers flow from the higher to the lower parts of a country, we can tell, by *observing the course* of the rivers, in what direction the land slopes.

Offices of Rivers and Streams.—Rivers cut natural gutters or drains for carrying the water back to the sea after it has performed its manifold offices.

More clearly to understand the **offices of rivers**, let us follow in imagination the water which feeds them, from the time it comes from the sea as a vapor, until it returns to the sea again through the river.

It has formed clouds which screen the earth from the heat and cold; it has been condensed into rain, and has refreshed the land with showers; it has fed the springs and wells; it has worn away the rocks, and, gathering from them the materials of which rich and fertile soil is made, has spread it out over their plains; and while it has been doing all this, it has turned mills, driven machinery, floated ships and boats which carried the produce of the land from one place to another.

10. A Lake is a body of water surrounded by land; as Lake Superior, the Great Salt Lake, Lake Victoria.

Review Topics.—The sea and its divisions. What is a bay, gulf, or sea? What is a strait? A sound? What is said of the Gulf Stream? A harbor. A river. The source of a river. The mouth. The bed of a river. What is a river system? What is a river basin? How can you tell the slope of the land? What are the offices of rivers? What is a lake?

XI. THE WINDS.

1. Winds are currents of air. They are mainly caused by one part of the atmosphere becoming hotter or colder than another. Whenever this takes place, the air moves.

Air Movements.—If a fire be kindled in a fireplace or stove, the air in the fireplace or stove is heated, becomes lighter, and is pressed upward by the cooler, heavier air of the room. The air now flows steadily from all parts of the room toward the fireplace or stove.

The rays of the sun are like such a fire.

They are always heating the air more in some places than in others. At the Equator and within the tropics they fall vertically, and consequently the air within the tropics is hotter than elsewhere. Hence, like the air near the stove, it constantly rises, being pressed upward by currents of cooler air which are always flowing in from the colder regions north and south.

2. Trade-Winds.—Thus there are two cold currents of air always flowing from the poles toward the Equator. Within the tropics these become **surface-winds**. Owing to the revolution of

the earth from west to east, the current from the north pole becomes a north-east wind, and the one from the south pole a south-east wind. These winds are called, from their value to commerce, or from their constant direction, the **Trade-Winds**.

3. The Counter-Trade-Winds.—The heated air rising within the tropics flows in two currents toward the poles in a direction opposite to that of the Trade-Winds. These return currents are the **Counter-Trade, or Westerly Winds**.

As they proceed toward the poles they gradually become cooler and heavier; they descend, and in the temperate re-



Showing the air movements created by building a fire in the open air. A strong current of cold air sets in toward the fire and the heated air rises and flows outward in every direction. Extensive fires, like the burning of Moscow and Chicago, have been followed by furious tornadoes.

gions becomes **surface-winds**. In the northern hemisphere they come from the south-west, and in the southern hemisphere from the north-west.

North and South Movements of Wind Belts.—All of these wind belts are separated by belts of calms. When the sun is north of the equator, all these belts are proportionally further north, and when the sun moves south all the wind and calm belts are proportionally further south.

4. Land and Sea Breezes.—All

along the sea-shore during the warm season there is a breeze from the sea by day, and one from the land by night.

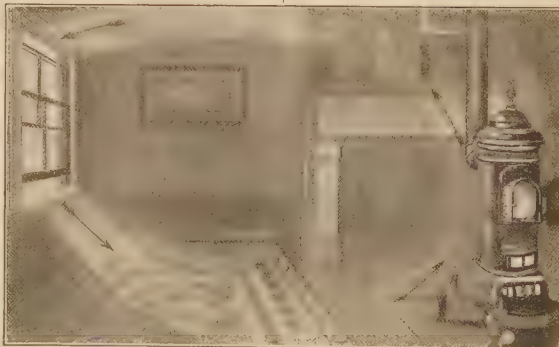
The land is heated more readily than the sea, and at night it cools more rapidly.

During the day the air above the land becomes hotter than that above the water. A current of warm air ascends over the land, while currents of cooler air flow in from the sea. Thus we have the **sea-breeze**. During the night the air over the land having become cooler than that over the sea, the current sets toward the sea, and thus we have the **land-breeze**.

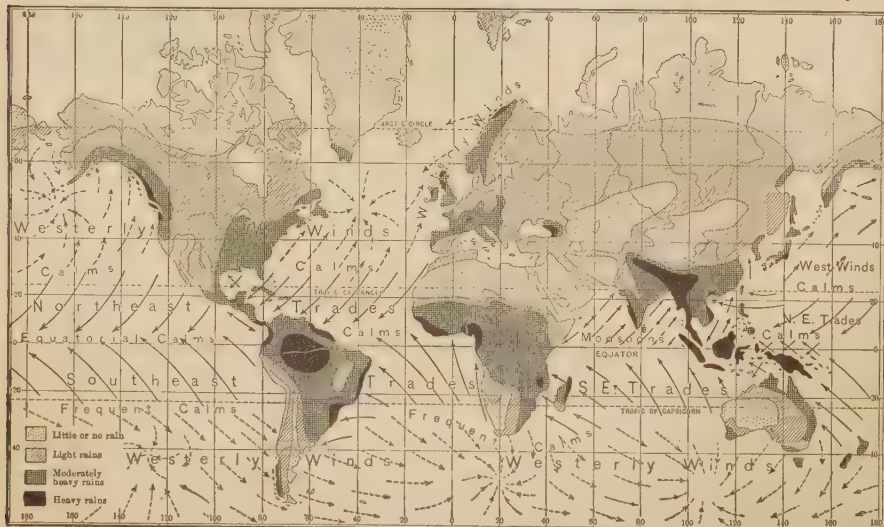
5. Monsoons are land and sea breezes on a large scale. Instead of alternating with day and night, they alternate with summer and winter, and blow for months at a time.

The most famous are those of India. The sun's rays beat with intense force upon the desert regions of Asia. The hot air rises in a mighty current, and there is an inrush of cooler air from the Indian Ocean toward the land.

6. Offices of the Winds.—The winds are carriers of heat and moisture. They are the cause of ocean currents (x. 5), and their power drives thousands of ships across the oceans.



The air movements started in a room containing a heated stove and an open window. The cool air being heavier descends and flows along the floor toward the stove. Here being heated it expands, becomes lighter and rises flowing along the top of the room and out at the top of the window.



A chart of the wind and rain belts. Direction of winds is indicated by arrows. When the arrows point in opposite directions in the same area they indicate a shifting of the winds at different seasons. The area and directions of cyclones are shown by a number of arrows pointing toward the center and curved in the direction in which the wind whirls.

As they blow over the surface of the sea they acquire the temperature of the water, and hence may become either **warm** or **cold winds**. They also gather up vast quantities of vapor which is carried over the land to fall in the form of rain or snow.

Review Topics.—What are winds? Cause? Give an illustration. What portion of the earth is the hottest? How does this heat affect the air? Where does the cold air come from to take its place? The trade-winds. What is their direction? The counter-trades. The sea-breeze. The land-breeze. Monsoons. The most famous? Offices of winds. Change in temperature of winds.

XII. CLIMATE.



Effect of latitude on vegetation. This is in the cold temperate region of Canada. The higher elevations have only a scanty covering of grass and dwarfed trees. But in the lower land there are tall pines and a fine orchard of apple trees. The grass is thick and luxuriant. The fences and houses built of lumber show that timber is abundant in this region.

1. Climate is the condition of the air with reference to heat and moisture.

It depends upon latitude, elevation, distance from the sea, the prevailing direction of the winds, and the flow of ocean currents.

2. Effect of Latitude.—The nearer the Equator, the warmer the climate, because the Torrid Zone is the region of vertical sun-rays. High temperature follows the vertical rays.

From the Equator toward the poles the climate gradually grows colder, until we reach the regions of perpetual snow and ice. Between these regions and the Torrid Zone lie the Temperate Zones, which have a comparatively moderate climate.

Besides having a higher temperature, the Torrid Zone has a greater rainfall than any other portion of the earth.



Effect of latitude on vegetation. This is a dense jungle in the tropical regions of South America. Here vegetable growth is so rapid that it is difficult to keep the fields cleared and the roads open.

Over this zone hovers the Equatorial **Cloud-Ring**, which is a belt of clouds extending nearly round the earth. It consists of the vapor brought together by the north-east and south-east trade-winds. It causes almost daily thunder-showers along the line of the Equator.

The cloud-ring follows the course of the sun north and south in his apparent journey between the tropics, and brings the **rainy season** to those places which are under it. When it has passed beyond the latitude of any place, the **dry season** of that place begins.

3. Effect of Elevation.—The temperature of mountains decreases about one degree for every 300 feet of perpendicular ascent.

Illustration.—The heat absorbed by the earth is prevented from escaping by the dense, moist layers of air that rest upon the surface. The air on the mountains being both drier and lighter, the heat received from the sun is quickly lost. For these reasons temperature decreases regularly with elevation.

There is in all latitudes a line of elevation above which the cold is, at all seasons of the year, sufficient to freeze the moisture of the air and form snow. This line is called the **Snow-Line**. The snow-line at the Equator (as shown in the diagram) is 16,000 feet above the sea; so that there are mountains in the Torrid Zone on the tops of which the weather is like that of the Arctic regions. Their slopes have all varieties of climate.

The peak of **Antisana**, in South America, although under the Equator, rises so high as to reach perpetually frozen regions.

In descending these snow-capped mountains in the tropics, we experience in a single day, in a ride of a few hours, all the changes of climate that would be felt in travelling from Spitzbergen to Cuba.

Effect of Mountains on Rainfall.—The cold air above mountain-tops condenses the moisture brought by the winds from the sea, into rain or snow which falls upon the mountains. Thus the mountains feed the rivers.

The snow and rain that fall upon the **Rocky Mountains** supply immense volumes of water to the Mississippi. The snow that crowns the **Himalayas** and gives them their name (*abode of snow*), with the rains that descend upon their slopes, feeds the Indus, the Ganges, and the Brahmaputra. The great rivers of South America are fed by the melting snows of the **Andes**.



Effect of latitude on vegetation and animal life. This is a view in Greenland. The vegetation is scanty. There are no trees and the glaciers come all the way down to the sea level. There is no timber to build houses, but the people live in tents made of the skins of animals. These are their summer homes. In winter, they live in stone huts which are partly under ground (see page 92). The dogs seen in the picture are the only domestic animals known to these cold regions.



Effect of latitude on vegetation. This is a view in the warm temperate regions of Southern France. A grove of olive trees is shown many of which are several centuries old. Notice the large branching trunks and the great circumference near the ground. The grass is thicker and the general vegetation more luxuriant than in the last picture.



Effect of latitude on the height of the snow line above the sea level. The snow line is much higher in summer than in winter and higher on the south side of mountains than on the north side. Can you explain this?

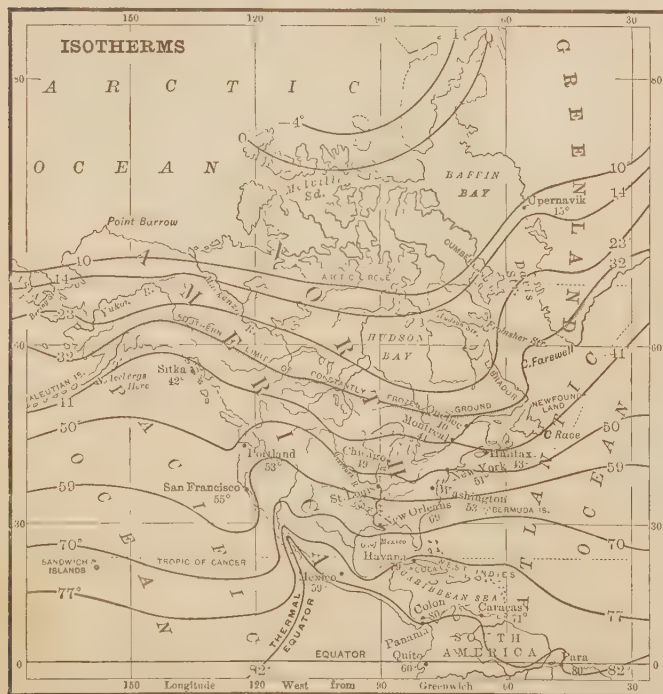
If the continents were entirely level, the winds would often sweep across them from sea to sea without letting a drop of water fall upon the land.

By their slopes, also, mountains determine the course of rivers, and therefore are often called **water-sheds, or divides**. Hills and low ridges also frequently serve as water-sheds.

4. Effect of Sea Winds.—The ocean is warmer in

winter and cooler in summer than the land. Countries, therefore, in which the prevailing winds come from the sea have warmer winters and cooler summers than might be expected from their latitude.

The island of **Great Britain** and the province of **Labrador** lie between the same parallels of latitude. Yet such is the difference of climate between them, that while in England the pastures are green all the year, Labrador is so cold as to be almost uninhabitable. In the British Isles the winds come from the ocean. They are loaded with moisture and warmth from the **Gulf Stream**. In Labrador they come from the land, and are dry and cold. Again, the climates of **Oregon** and **British Columbia** are mild, because the prevailing winds come from the Pacific Ocean.



Showing the isotherms of North America. Compare the average temperature along the Atlantic Coast with the temperature in the same latitude on the Pacific Coast. Trace the isotherm of 50° across the Continent and explain the changes in direction.

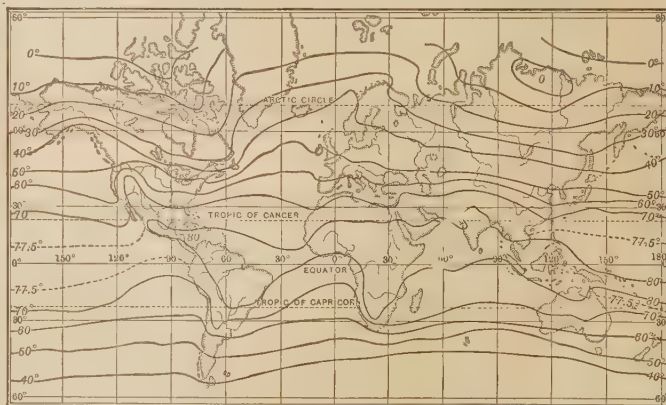


A mountain above the snow line in tropical South America. Notice the dense growth on the low plain along the river and how it diminishes gradually until at the mountain top you see the region of perpetual snow.

Large bodies of fresh water also, such as the **Great Lakes**, modify climate. Southern Michigan owes its comparative mildness to this cause. The biting west winds are tempered as they sweep over Lake Michigan.

5. Isotherms (isos, *equal*; thermos, *heat*) are lines drawn through all places having the same average annual temperature. The figures attached to them on the map indicate the average temperature during the year.

The striking bends of these isotherms are due to the combined agency of the winds, the great currents of the ocean, the moisture in the air, and the height above the sea-level. The **isotherm of New**



The general direction of isotherms on the earth's surface. The degrees show the average annual temperature. Notice that the lines are very irregular. This is due to elevation, the ocean currents, and to the prevailing winds. Notice that, as a rule, the lines bend northward over the oceans and southward over the land. Can you explain this in the case of the Atlantic Ocean and of North America?

York, soon after leaving the Atlantic coast, is bent northward by the warm Gulf Stream, and comes out on the other side of the Atlantic, nearly 900 miles farther north than New York. Again, the isotherms of the **California coast** are bent sharply southward by the chilling ocean current near that coast.

6. Industries and Climates.—The geographical distribution of agricultural labor is almost wholly determined by climate. There are other industries, however, such as mining and manufacturing, that are, to a certain extent, independent of climate.

Review Topics.—Climate. On what does it depend? Effect of latitude. What is said of the moisture of the torrid regions? The equatorial cloud-ring. What is the effect of elevation? What is the snow-line? What is the effect of sea winds? Compare Great Britain and Labrador. Why have Oregon and British Columbia such a mild climate? What gives Southern Michigan a comparatively mild climate? Isotherms. What is said of the isotherm of New York? How is labor affected by climate?

XIII. PLANTS AND ANIMALS.

1. The earth is clothed with vegetation and animated with living creatures: these are called its **Flora** and its **Fauna**.

2. The **Geographical Range** of a plant is the extent of the earth's surface within which that plant will thrive in the open air. Each kind of plant has its special geographical range; for its growth depends upon **light**, **heat**, and **moisture**.

Thus the cinchona tree, the rubber tree, and the pineapple grow only in or near the **Torrid Zone**, where great heat and excessive moisture produce the most luxuriant vegetation; while hemp, flax, and



Arctic or North Frigid Zone: 1. Fur seal. 2. Musk ox. 3. Reindeer. 4. Kodiak bear. 5. Polar bear. 6. Walrus.



North Temperate Zone, North America: 7. American elk. 8. Rocky mountain goat. 9. Rocky mountain sheep. 10. Prong-horn antelope. 11. Bison. 12. Bald eagle. 13. Cougar. 14. Brown pelican. 15. Rattlesnake.



North Temperate Zone, Europe and Asia: 16. Chamois. 17. Red deer. 18. Ibex. 19. Osprey. 20. European brown bear. 21. Hedge hog. 22. Wolf.

and cotton, tea, the fig, magnolia, and mulberry flourish. The middle belt of the temperate zone is called the **grain belt**, or the **cool belt**. Wheat and corn are the leading grains, and the apple, pear, oak, hickory, chestnut, and walnut trees flourish. The belts lying next to the frigid zones are called the **cold belts**. Oats and barley are the principal grains, and firs, birches, spruces, and larches grow.

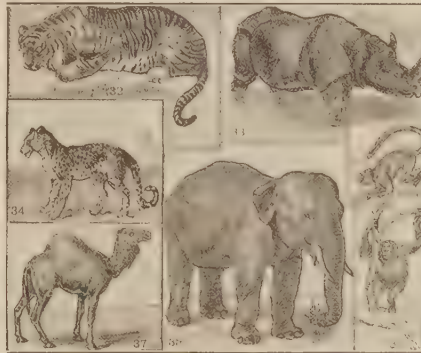
Between the belts of plant life the lines are nowhere sharply drawn. The plants of one belt are found growing in the belts on either side, though not in such perfection.

5. Frigid Zones.

—The vegetation of these zones consists chiefly of lichens and mosses. None of the great agricultural sta-



Torrid Zone, South America: 23. Three-toed sloth. 24. Condor. 25. Spider monkey. 26. Macaw. 27. Anteater. 28. American tapir. 29. Anaconda. 30. Jaguar. 31. Brazilian caiman.



Torrid Zone, Asia: 32. Tiger. 33. Indian rhinoceros. 34. Asiatic elephant. 35. Common macaque monkey. 36. Camel. 37. Camel. 38. Orang-outang.



Torrid Zone, Africa: 39. Giraffe. 40. African elephant. 41. Ostrich. 42. Hippopotamus. 43. Kipspringer. 44. Lion.

buckwheat find their home in the Temperate Zone.

3. Torrid Zone.

The richest fruits, the most brilliant flowers, and the greatest variety of useful plants are found in the **Torrid Zone**.



South Temperate Zone, South America: 45. Chinchilla. 46. South American panther. 47. Three-banded armadillo. 48. Viscacha. 49. Vicuña. 50. Guanaco. 51. Rhea.

The following are the most noted: the coffee-tree, the banana, the pineapple, and the palm, the bread-fruit and the mango, India rubber and gutta-percha, the cinchona and the aloe.

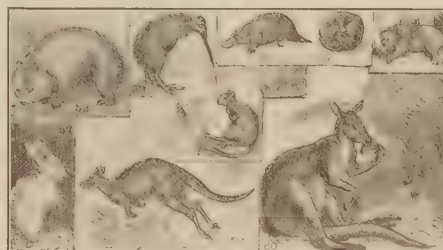
4. Temperate Zones.

—In the Temperate Zones we find the grains (wheat, corn, rye, oats, and barley), with hemp, flax, and many other useful plants. Among the trees are the beech and the chestnut, the elm, oak, maple, and many fruit trees.

Those parts of the temperate zones lying next to the torrid are called the **sub-tropical**, or **warm belts**. Here rice is the leading grain,



Antarctic or South Frigid Zone: 61. Whale. 62. Elephant seal. 63. Penguins. 64. Emperor penguin. 65-66. Seals. 68. Petrels.



South Temperate Zone, Australia: 52. Wombat. 53. Apteryx. 54. Duckbill. 55. Duckbill rolled into a ball, asleep. 56. Koala. 57. Cheropus. 58. Rock kangaroo. 59. Tree kangaroo. 60. Red kangaroo.

ples, except perhaps barley, will grow there.

6. Animals, like plants, have their geographical range. In the **Torrid Zone** we find the largest and most powerful land

animals, as the elephant, lion, and tiger; in the **Temperate Zone**, the domestic animals, as the horse, ox, and sheep; in the **Frigid Zone**, the polar bear, reindeer, and walrus.

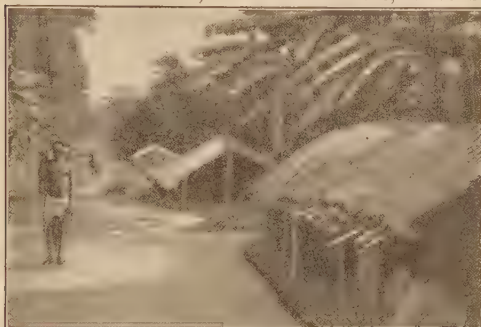
Man, unlike the other animals, inhabits every region where food is obtainable.

Review Topics.—What do you mean by the flora of a country? The fauna? What is the geographical range of a plant? Upon what does the growth of plants depend? The plants of the **Torrid Zone**. Name some of the trees and plants peculiar to the Temperate Zones. What is said of the Frigid Zones? Where are the largest animals found? The most useful animals found? The animals of the Frigid Zone. The range of man. Zone? Man?

POLITICAL GEOGRAPHY.

XIV. MAN.

1. **The Human Family**, which consists of about 1,600 million persons, may be divided, according to the different social conditions of men, into four classes, viz.: **savage, barbarous, civilized, and enlightened.**



The savage stage. An African village.

made little progress beyond the savage. Some of them live in tents, lead a wandering life, and are sometimes called **nomads**.

They are called nomads (from a word meaning pasturage) because, when the grass in one place has been eaten by their flocks, they move to another. Some are acquainted with agriculture and the simpler arts.



Barbarism. A home in central Asia.

4. Some **civilized** nations, like the Chinese and the Turks, live in towns and cities, understand many arts, have a written language, and have made considerable advancement in intelligence and morality. But their civilization has become stationary, and they have ceased to make progress in the arts of life.

5. **Enlightened** nations, such as the English and the French, carry on commerce extensively, and by constant intercourse with one another improve rapidly. Science and invention belong to them.

They employ machinery on a vast scale. They establish schools and other institutions of learning, and their systems of government are intended to secure the good of all rather than to gratify the will of a few.

6. **Races.**—Men are also classified, according to form, feature, and color, into five great races: the **Caucasian**, the **Mongolian**, the **Malay**, the **American Indian**, and the **Ethiopian**.

The American Indians and the Malays of southeastern Asia are now thought to be remote branches of the Mongolian race. This reduces the distinct racial types to three—the white, the yellow, and the black.

7. **The Caucasian or White** race had its origin in the western part of Asia. All the nations of Europe, except the Lapps, Finns, Turks, and the Magyars of Hungary, belong to this race.

2. Savages have no knowledge of the arts.

They live by hunting and fishing, and wear the rudest kind of clothing.

3. Barbarous nations have

The descendants of Europeans have spread over the world, and now both Americas are governed by them.

The members of this race are the most enlightened and the most enterprising of the races, and are rapidly colonizing, civilizing, and enlightening the world.

8. **The Mongolian or Yellow** race occupies a large part of Asia, and includes the Eskimos of America, and the Lapps, Finns, Samoiedes, Magyars, and Turks. The leading nations belonging to this race are the Japanese and Chinese.

Among the Mongolians are tribes of every grade of civilization, from the Eskimos, who are mere savages, to the progressive Japanese.

9. **The Malay or Brown** race occupies most of the islands of the Pacific, but is giving way before European colonists.

The color of the Malays varies from olive-yellow to black. Some scientists include the Malays among the divisions of the Mongolian race.

10. **The American Indians or Red** race are tall, erect, and somewhat dark.

They were mostly savages, but there are remains of ancient civilization in many parts of the New World, particularly in Mexico and Peru.

11. **The Ethiopian or Black** race is found chiefly in Africa, where it is for the most part in a savage state. Its descendants in America are civilized.

Review Topics.—What is the population of the world? How is the human family divided? Savages. Barbarous nations. Civilized. How do civilized differ from barbarous? Enlightened nations. The races. Caucasians. Mongolians. Malays. American Indians. The Ethiopian.



Civilization. Morocco.

XV. INDUSTRIAL PURSUITS OF MAN.

1. Man requires **food, raiment, and shelter**. To secure them he resorts to various occupations.

2. **Industrial Pursuits.**—The leading occupations or industrial pursuits are agriculture, fishing, mining, manufacturing, commerce and transportation.



The enlightened stage. A view of New York City from the harbor.

Agriculture includes tilling the earth to obtain useful plants, and grazing, or the raising of flocks and herds.

Fishing includes the taking of fish from fresh and salt waters.

Mining is the digging of valuable ores and minerals from the earth, and refining them.

Manufacturing is the working up of all sorts of raw material, into more useful and valuable shapes.

Commerce includes buying and selling, and the exchanging of the products of one country, or section, for those of another.

Transportation includes the carrying of people and products from one place or country to another.

3. Why Industries Vary.—Many industries depend upon climate, situation, and wants of the country.

In **Louisiana**, for example, the cultivation of the sugar-cane is an important branch of industry.

In **Maine** the cutting and gathering of ice from the frozen lakes and rivers in winter is an important industry.

There are no frozen lakes and rivers in Louisiana; and no cane-fields in Maine, simply because climate forbids. For this reason the industries of these sections differ.

The occurrence of minerals, such as coal, iron, gold, silver, lead, salt and petroleum, largely affect the industries of men.

How Coal and Iron Affect Industries.

Countries abounding in coal and iron are extensively engaged in manufacturing. Coal is necessary both for fuel and for the manufacture of iron and steel machinery. Being heavy substances to transport, manufacturing can be carried on more cheaply where these two minerals are found together.

Review Topics.—What does man require? The leading industrial pursuits. Agriculture, Grazing, Fishing, Mining, Manufacturing, Commerce. On what do industries depend? Compare Louisiana and Maine. How do coal and iron affect industries? What other things are necessary for carrying on manufacturing? Can you tell how such things are obtained?

XVII. RELIGIONS.

1. All people have some kind of religion. The principal forms of religion are—**Christianity**, **Judaism**, **Mohammedanism**, **Buddhism**, **Brahmanism**, and the religion of the **Guebres** (*Guebres*).

2. Christianity.—Christians believe in the Bible as the Word of God, and in Jesus Christ as the Son of God. All the nations of America, and all those of Europe, except the Turks, profess the Christian religion.

In Asia and Africa there are some Christian communities, and Christianity is gradually gaining converts in both these continents. Only about one-third of the inhabitants of the globe, however, profess the Christian religion.

3. Judaism.—The Jews believe in the Old Testament, but not in the New.

4. Mohammedanism.—The Mohammedans believe that "There is one God, and Mohammed is his Prophet."

The **Koran** was written by Mohammed about 600 years after Christ. It is the Bible of his followers. The Turks, Arabs, and Persians, and many other inhabitants of Asia and Africa, are Mohammedans.

5. Buddhism.—Buddha was the founder of this religion. His followers, who comprise one quarter of the human family, do not believe in any God. They insist on the practice of charity.

Most of the people of Eastern and South-Eastern Asia are Buddhists.

6. Brahmanism.—The Brahmans are very numerous. They are the leading religious sect of India, from which they drove most of the Buddhists by persecution.

They believe that God is in everything—in the shining light, in the moving wind, in the falling rain, in the animals, and of course in man himself. *Juggernaut* is one of their most famous idols.

7. The Guebres or Parsees are the followers of Zoroaster. The sun and fire are with them emblems of the Deity.

They are the so-called **fire-worshippers** of Persia and India.

Review Topics.—Name the principal forms of religion. What do Christians believe? Which three continents are inhabited chiefly by Christians? Do you find many Christian communities in Asia and Africa? What is said of the Jews?



St. Peter's, at Rome. The largest church in the world.

What is the great doctrine of the Mohammedans? What is the Koran? Who wrote it? Name some Mohammedan nations. What is said of Buddhism? Of Brahmanism? What is Juggernaut? The Guebres.

XVIII. GOVERNMENTS

1. Government and its End.—All people require government of some sort; otherwise the strong would oppress the weak.

2. Kinds of Government.—Civilized governments of the present day may be reduced to two kinds—the **Republican** and the **Monarchical**.

3. A Republic is a State in which the President, or head of the government, is elected by the people to serve for a certain time. The laws are made by representatives also chosen by the people.

4. A Monarchy is a government in which the ruler inherits his office and holds it during life.

Of monarchies there are two kinds: **Absolute**, in which the will of the sovereign is the supreme law of the land, and **Limited**, in which the laws are made by representatives of the people.

The monarchies of Europe, with the possible exception of Turkey, are all limited.

A monarchy may be a **Kingdom**, or an **Empire**. The sovereign is usually called King, Queen, or Emperor.

The Best Government.—The kind of government best suited to any country depends upon the people who inhabit it. Where the people are of a high degree of intelligence, it is thought best to give every one a share in the government, as in republics and limited monarchies; but to give this right to ignorant persons would only result in confusion and bad government. The simplest form of government is that of the tribe, where all are ruled by the will of a single chief. As people increase in numbers and intelligence they demand a larger and larger share in the government, until at last they take entire control of it.

Review Topics.—The use of government. Kinds. Republic. Monarchy. How many kinds of monarchies? Define them. How are the States of Europe governed?

MAP STUDIES.

THE HEMISPHERES

General Questions.

—By what meridian circle have we here divided the earth into hemispheres? What circle divides the earth into a northern and a southern hemisphere? Which hemisphere contains most land, the eastern or the western? Which hemisphere contains the most water, the northern or southern?

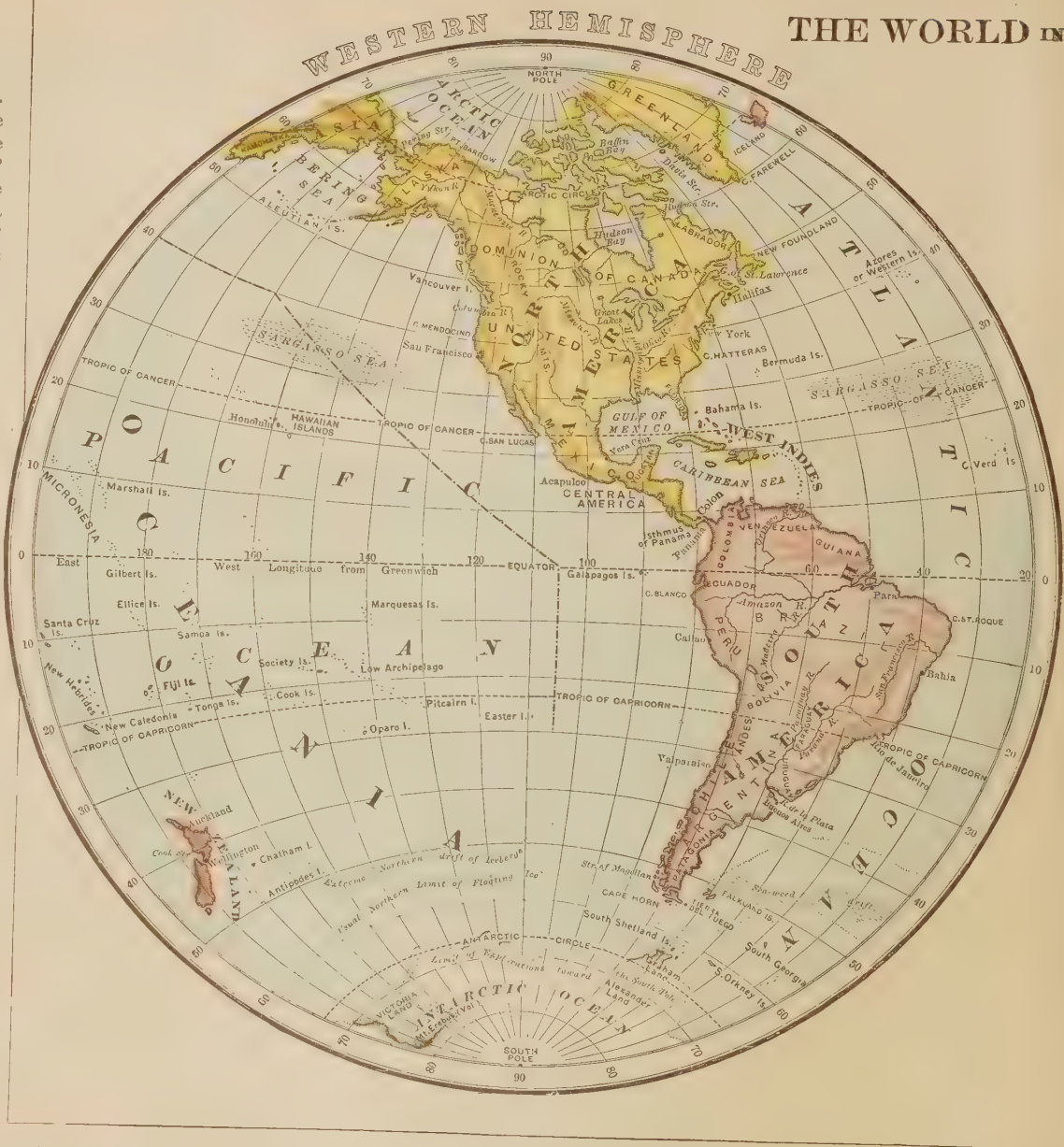
Continents.—In which zone do you find the greatest proportion of land? What continents do you find in the western hemisphere? In the eastern? What continent lies partly in both? What continents lie wholly north of the Equator? Which are divided by the Equator? By the Tropic of Cancer? Tropic of Capricorn? The Arctic Circle? Through what part of Europe does this circle pass? How are North and South America united? Asia and Africa? What sea and strait separate Africa and Europe? In what direction does North America lie from Europe? From Africa? In what direction is Australia from Asia? From South America.

Islands.—In which ocean are most of the islands of the world? What important group off the western shores of Europe? What islands off the coast of Asia form a great empire? What large islands between Asia and Australia? Which is the largest island in the world? Ans. *Papua*. What large island east of Africa? What group southeast of the United States? What group incloses Bering Sea? Where is the New Zealand group? Ceylon? What island south of Australia? North?

Capes.—What is the most northerly cape of Europe? The most southerly of South America? The most southerly capes of Africa? The most easterly? The most southerly of India?

Mountains.—Where are the Rocky Mountains? The Andes? The Alps? The Himalayas? The Atlas? In what direction do the mountain ranges of the western hemisphere extend? Those of the eastern?

Deserts.—What are the two great deserts of the world? In which continents are they?



XVIII. THE HEMISPHERES.

1. If we divide the earth into hemispheres, as above, we have what are called the Eastern and Western Hemispheres.

2. The Western Hemisphere contains North and South America, and is called the New World.

3. The Eastern Hemisphere contains Europe, Asia, Africa, and Australia. Europe, Asia, and Africa are called the **Old World**, because our ancestors lived there thousands of years before the New World was found by Columbus. The Eastern Hemisphere has nearly twice as much land as the Western.

4. Asia and Africa are connected by the Isthmus of Suez, and North America and South America by the Isthmus of Panama.

Both of these isthmuses are famous because they join large continents together, and also because they furnish important commercial routes between great oceans and seas.

HEMISPHERES



MAP STUDIES.

THE HEMISPHERES.

Oceans.—Which is the largest ocean? How much of the Western Hemisphere does it cover? *The Pacific is remarkable for the number of islands contained in it, and for the belt of volcanoes that encircles it.* Between what continents is the Atlantic? *The Atlantic is the only ocean which is widely open on the north.* Moreover, it reaches, like a long valley, from pole to pole, and forms the only ready channel for the exchange of the polar and equatorial waters. Which ocean is west of North and South America? Which is east? Which is north of North America? Which is west of Europe? South of Asia? *The Indian Ocean is remarkable for the violent hurricanes which sweep over it.* What ocean east of Asia? North? East of Africa? West? South? Where is the Antarctic Ocean?

Seas, Bays, and Gulfs.—Where is the Sea of Japan? The China Sea? Bay of Bengal? Arabian Sea? Red Sea? Mediterranean? Gulf of Guinea? Caribbean Sea? Gulf of Mexico? Bering Sea? Hudson Bay? In which oceans do we find Sargasso seas? *These are immense areas of the ocean covered with seaweed. The ocean currents move about them in whirls.*

5. The earth's surface is also divided by the Equator into Northern and Southern Hemispheres.

6. Europe, Asia, and North America lie in the Northern Hemisphere, and are chiefly in the Temperate Zone.

Their coast lines are broken by inland seas, bays, and gulfs, which greatly facilitate commerce. The Northern Hemisphere is the seat of knowledge, civilization, and power. It is the commercial hemisphere.

7. The southern continents are South America, Africa, and Australia. They lie principally in the Torrid Zone.

Compared with the other continents, they are marked by lack of coast indentation, and hence do not afford the same facilities for commerce.

Review Topics.—Hemispheres. What continents are in the Western Hemisphere? What does the Eastern Hemisphere contain? What is meant by the Old World? Which hemisphere contains the most land? How are Asia and Africa connected? North and South America? What makes these isthmuses famous? What continents does the Northern Hemisphere contain? In what zones are they? What is said of their coast lines? Which is the commercial hemisphere? Name the southern continents. In what zones are they?

Lakes and Rivers.—What great lakes in Africa? Western Asia? *Ans. Caspian and Aral seas.* Where are the great lakes of the Western Hemisphere? Where is the Amazon? Mississippi? In what directions do these flow? Where is the Nile? Yenisei? Yangtze?

Voyages.—On what oceans would you sail in going from America, in a southeastwardly course, to Australia, thence to California? What oceans would you sail on in a voyage from New York to California, by way of Cape Horn? From New York to China, by way of the Cape of Good Hope? From Cape Horn to the Cape of Good Hope?

Latitude and Longitude.—Where would a ship be if she had no latitude and no longitude? Suppose a ship in latitude 20° north, longitude 160° west, what islands is she near? Suppose a ship in longitude 160° east, latitude 30° south, and sailing westward, what coast is she nearing?

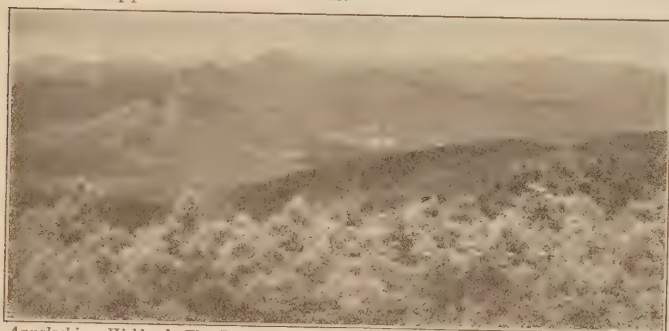
NORTH AMERICA.

XIX. PHYSICAL FEATURES.

1. **North America** stretches from the Arctic regions to the Torrid Zone, and embraces a great range of latitude, diversity of climate, and variety of vegetable productions.

2. **Surface.**—The continent is divided into three great sections: I. The **Atlantic Plain** and **Appalachian Highland**; II. The **Great Central Plain**; III. The **Pacific Highland and Slope**.

3. The **Atlantic Plain** is the country lying between the ocean and the Appalachian Mountains.



Appalachian Highland—The Blue Ridge at Sapphire, N. C.

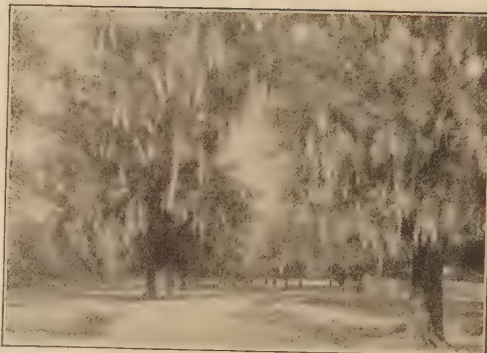
MAP STUDIES.—What oceans nearly surround North America? What ocean current on the western coast? The southeastern coast? What is its direction? What current passes toward Newfoundland from the Arctic regions? What bay indents the northern part of the continent? What peninsula east of it? What gulf south of Labrador? What great gulf indents the southeastern coast? What peninsulas nearly enclose it? What channels lead to it? What is the general direction of the Atlantic coast? Of the Pacific? What large peninsula forms the northwestern extremity of the continent? What strait separates it from Asia?—What gulf indents the western coast? What peninsula west of this gulf? What land east of Baffin Bay? Island east of Greenland? What islands between North and South America? Name the four largest. In what zone do they lie? What sea south of them? What island east of the Gulf of St. Lawrence? What isthmus unites North and South America?

Surface.—What does each color on the map show? Is most of the continent high or low? What is the most elevated portion? Where does the chief lowland lie? What elevation of land divides the Central Plain? Name its southern portion. What ocean on the north? Gulf on the south? What highlands near the eastern coast? Their general direction? What region between the Appalachian Highland and the sea? What highland region in the west? What mountain system? What is its direction and extent? What mountains near the Pacific coast?

Rivers and Lakes.—What great river system drains the southern part of the Central Plain? What rivers drain the northern part? Into what do these rivers flow? What lakes are drained by the St. Lawrence? In what direction does this river flow? In what direction do the rivers of the Atlantic Plain flow? Name the chief rivers of the Pacific Slope.

Vegetation and Animals.—Trace the northern limit of trees. What plants grow north of this limit? How far north do barley, oats, and flax

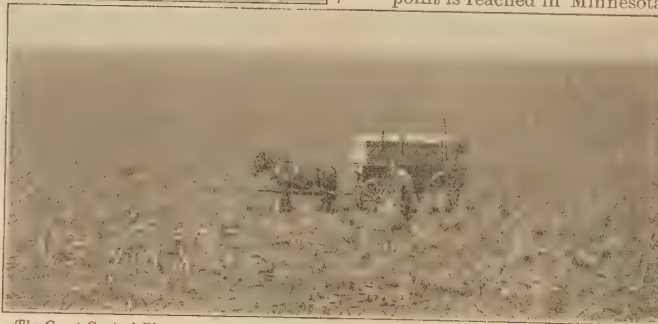
4. The **Appalachian Highland** comprises the ranges known as the Appalachian Mountains. These extend from the Gulf of St. Lawrence nearly to the Gulf of Mexico.



Atlantic Plain near Wilmington, N. C., showing live oaks with Spanish moss.

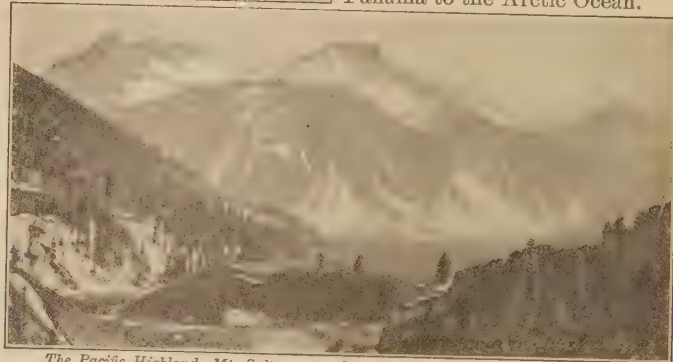
5. The **Great Central Plain** reaches from the Arctic Ocean to the Gulf of Mexico. It lies between the two Highland regions.

Near the head waters of the Mississippi this plain is crossed by a low ridge, called the **Laurentian Highland**, which divides it into two great slopes. One inclines to the north, and sends its waters into the Arctic Ocean, the other to the south, draining the Valley of the Mississippi. From Minnesota the Laurentian Highland may be traced northward of the Great Lakes toward the Atlantic. The highest point is reached in Minnesota, where the source of the Mississippi is 1,600 feet above the sea-level. The Laurentian Highland is also called The Height-of-Land.



The Great Central Plain in North Dakota.

6. The **Pacific Highland** includes the Rocky Mountains and the elevated Plateau lying between these mountains on the one side, and the Sierra Nevada and Cascade Ranges on the other. It extends from the Isthmus of Panama to the Arctic Ocean.



The Pacific Highland—Mt. Sultan, a peak of the Rocky Mountains in Colorado.

grow in the western part of the continent? In the central? In the eastern? How many degrees farther north do they grow on the Pacific than on the Atlantic side? Judging from this, which side of the continent has the milder climate? Account for the difference. Where does the line pass, south of which there is seldom any snow? Where do we find the whale? The walrus? The seal and sea-otter? The eider-duck? The cod, mackerel, and herring? Sponges, coral, green turtle? On what part of the continent are fur-bearing animals found? The grizzly bear? The elk?





The Pacific Slope from Berkeley, showing the City of San Francisco and the Golden Gate.

Between this Highland and the Pacific Ocean lies the **Pacific Slope**.

7. Rivers and Lakes.—North America is abundantly watered. Its rivers and lakes are among the largest in the world. A very large portion of all the fresh water on the globe is contained in its lakes.

The **Mississippi** and its numerous tributaries traverse the southern slope of the Great Central Plain. The **Missouri** and the Lower Mississippi together form one of the longest water-courses in the world. Its length is more than 4,000 miles.

The **St. Lawrence** drains the Great Lakes and flows into the Gulf of St. Lawrence. The rivers of the eastern slope of the Appalachian Mountains all enter the Atlantic Ocean or the Gulf of Mexico.

Those of the Pacific Highland are the **Yukon**, which flows into Bering Sea and is navigable for 1,500 miles, the **Columbia** and the **Colorado** entering the Pacific, and the **Rio Grande**, which flows into the Gulf of Mexico.

The **Mackenzie**, the **Saskatchewan**, and the **Nelson** drain the northern portion of the Central Plain and flow into the Arctic Ocean or into Hudson Bay.

Review Topics.—Extent of North America, north and south. What gives this continent its great diversity of climate and variety of production? How is the surface divided? Describe the Atlantic Plain. The Appalachian High-

MAP STUDIES.—What country occupies the northern part of North America? What country north east of British America? South? What country south of the United States? South east of Mexico?

Danish America (belongs to Denmark).—Of what does Danish America consist? Name the capital of Iceland. What towns lie within the Arctic Circle? Where is Cape North? Cape Farewell?

British America.—What is the principal division of British America? What island and province form the other division? What mountain range in the western part? What lakes are drained by the Mackenzie River? The Nelson? What lakes on the southern border of the Dominion of Canada? Where is Cape Race? Cape Sable? Bay of Fundy? Grand Bank? Two islands on the Pacific coast? Where is the Magnetic Pole? At this pole the magnetic needle points towards the center of the earth. What is the capital of the Dominion? What Cities on the St. Lawrence? Where is Halifax?

land. The Great Central Plain. By what is it divided? What is said of the two slopes? Describe the Laurentian Highland. The Pacific Highland. The Pacific Slope. What is said of the rivers and lakes of North America? Of the Mississippi and its branches? The St. Lawrence? The rivers of the Appalachian Mountains? Pacific Plateau?

XX. CLIMATE, VEGETATION, AND INHABITANTS.

1. Climate and Vegetation.—The climate of North America is varied. The greater part of the continent is in the Temperate Zone. This portion is well watered, and contains extensive forests, grassy plains, and abundant vegetation.

The extreme **northern** part is cold and almost uninhabitable. It is marked by a dwarfed and scanty vegetation, which, on the Arctic shores, consists of nothing but mosses and lichens.

The **southern** part lies near or in the Torrid Zone. It has a tropical climate, an abundant rainfall, and luxuriant vegetation.

Cotton, coffee, sugar cane, and tobacco are here extensively cultivated, and the banana, pineapple, orange, and lemon are found in perfection.

2. Advantages of Position.—North America lies between the two great oceans; it has the Atlantic on the east and the Pacific on the west. Its harbors on the Pacific are midway between the western shores of Europe and the eastern shores of Asia.

With its double sea front, numerous harbors, central position, narrow isthmus, with quick transit across it, North America is well situated for trade with both Europe and Asia.

3. Discovery.—America was discovered by Christopher Columbus in 1492. It was named America after Americus Vesputius, a Florentine and a contemporary of Columbus.

The first land discovered was **Watling Island**, one of the small islands of the West Indies. Other islands of the group were discovered by Columbus, and he left some of his men on the island of Haiti. Finally, on his third voyage, he discovered the continent itself. Columbus thought that these islands were the **East Indies**, but when



The waters of the Great Lakes pass from Lake Erie to Lake Ontario through the Niagara River, and descend 167 feet at one leap, forming the grandest cataract in the world.

United States.—Two capes on the east? What mountains near the west coast? Where are the Appalachian Mts.? What three bays on the eastern coast? Where is Boston? New York? Philadelphia? Washington? What city on the Ohio? On Lake Michigan? What city near the mouth of the Missouri? Near the mouth of the Mississippi? On the Pacific coast?

Mexico.—What river between Mexico and the United States? What gulf and peninsula on the Pacific coast? What is the principal mountain range? Name one of its volcanoes. What is the capital? What city on the Bay of Campeche?

Central America.—What sea on the east? What ocean on the west? What lake in the southern part? What are the chief cities?

West Indies.—Name the four largest islands of this group. Where is Havana? Port-au-Prince? Santo Domingo? Kingston? San Juan? Where are the Bahama Islands? The Bermudas?



NORTH AMERICA POLITICAL MAP

SCALE OF MILES
0 100 500 1000



For every 15 degrees of longitude the difference of time is one hour.

TIME A.M. when it is Noon on the Meridian of Greenwich, and 6.52 A.M. at Washington.

it was found that they were not, they were called the **West Indies**. Spanish colonies were promptly established in the New World. Cuba and the other Spanish-American republics grew out of these.

4. Inhabitants.—The continent is at present occupied chiefly by Caucasians of various nationalities, and by the descendants of African Negroes.

Both North and South America, with their adjacent islands, were inhabited at the time of their discovery by **Indians**, of whom only the **Peruvians** and the **Aztecs** of Mexico were civilized.

No horses, cows, or other domestic animals were known to the natives, except the hairless dog of Cuba and the llama of Peru.

The Indians roamed over the country from one hunting ground to another, living in wigwams. They rarely cultivated the soil. Some of their tribes are now partially civilized.

The **Arctic** portions of the continent are still in possession of the native **Eskimos**, who live in snow huts, clothe themselves in the skins

of animals, and feed upon fish and the flesh of the bear, seal, and walrus.

5. Political Divisions.—Greenland and Iceland belong to Denmark; The Dominion of Canada, Labrador, and Newfoundland belong to Great Britain; The United States (including Alaska and Porto Rico), Mexico, the Central American States, Cuba, Haiti, and Santo Domingo are independent republics; other West Indian islands, the Bahamas, and the Bermudas, belong to European nations.

Review Topics.—In what zone is a large part of North America? Describe the vegetation of the extreme northern portion. Of the southern portion. Products of each.* How is North America located? Commercial importance. When and by whom was America discovered? Why so called? Account for the name West Indies. Who are the present inhabitants of the continent? Describe the Indians. Eskimos. Name the political divisions of North America.

THE UNITED STATES.

XXI. RANK AND PHYSICAL FEATURES.

1. Position and Rank.—The United States occupies the central and most fertile part of North America. It ranks as one of the greatest powers of the world, and stands first in agriculture, manufactures, and wealth.

2. Extent.—The country extends from the Atlantic to the Pacific Ocean, and from the Great Lakes on the north to the Gulf of Mexico on the south. The distance from ocean to ocean, in a direct line across the country, is 2,100 miles in the narrowest, and 2,800 in the broadest part, and its greatest breadth from north to south is nearly 1,700 miles.

The area of the United States, including Alaska and the outlying islands, is 3,805,000 square miles.

3. Surface.—The surface of the United States consists of three great natural divisions: I. The **Atlantic Plain** and **Appalachian Highland**. II. The **Valley of the Mississippi**. III. The **Pacific Highland** and **Slope**.

THE ATLANTIC PLAIN AND APPALACHIAN HIGHLAND.

4. The Atlantic Plain lies between the sea and the Appalachian Mountains.

It consists of a belt of lowland called the **Coastal Plain**, and an upland region called the **Piedmont**.

The **Coastal Plain** is narrow at the north, but widens toward the south, where it is from 200 to 300 miles in width.

West of this low plain lies the **Piedmont** region, or hill country, which gradually increases in elevation until we reach the foot of the mountains.

5. The Appalachian Highland.—Beyond this hill country are the mountain ranges forming the Appalachian system. They lie nearly parallel to one another, and extend in a northeast and southwest direction, from the St. Lawrence nearly to the Gulf of Mexico.

The most prominent of these ranges are the **White Mountains**, the **Green Mountains**, the **Adirondacks**, the **Blue Ridge**, and the **Allegheny Mountains**.

Here and there are elevations of 6,000 feet, but the average height is not more than 2,000 or 3,000 feet. With few exceptions the Appalachians are forest-clad to their summits.

6. The Climate of this division varies with the latitude. In the northern portion there are long and severe winters; in the southern, flowers

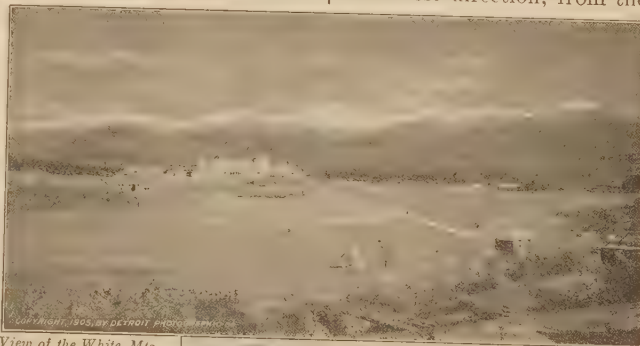
are blooming all the year round. The entire region has a moderate but sufficient rainfall.

7. The Products of the Atlantic and Gulf Plains correspond with the climate. When these sections were first settled by white men, they were covered with forests.

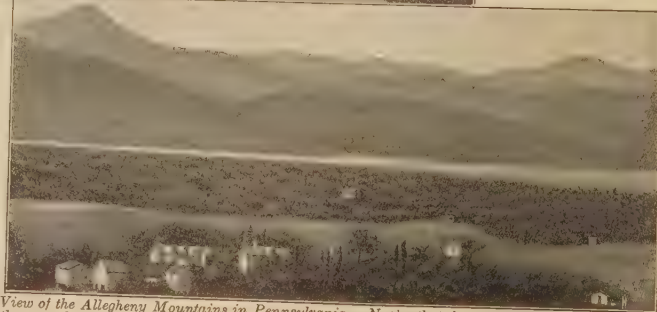
The **northern section** produces oats, corn, hay, and potatoes.

In the **central portion** the yield of hardy fruits and grains is abundant.

In the **southern section** we find cotton and rice, indicating a semi-tropical climate, while in large areas of Florida the orange and lemon, banana, and guava flourish.



View of the White Mts., showing the Presidential Range. The high peak in the center is Mt. Washington. The large building is a summer hotel.



View of the Allegheny Mountains in Pennsylvania. Notice that the tops of the mountains are on the same line which shows the level of an old plateau through which streams have cut valleys, as shown in the picture.

8. The Natural Advantages of the Atlantic Plain and Appalachian Highland are very great.

The deposits of coal, iron, and petroleum are enormous. Numerous rivers rise in the highlands, furnishing water-power for the manufacturer and highways for commerce in the Coastal Plain. The coast line is much indented, forming excellent harbors.



The Mississippi River and its flood-plain at Winton, Minn., looking up the river. Notice the drawbridge which is drawn to permit steamboats to pass and the jetty on the left-hand side to deepen the channel and prevent the banks from being washed away. Above notice the several branches, all of which are a part of the river. The opposite shore is Wisconsin.

THE VALLEY OF THE MISSISSIPPI.

9. Valley of the Mississippi.—Crossing the wooded heights of the Appalachian ranges, we enter a vast shallow basin called the Valley of the Mississippi. It extends from the Appalachians to the Rocky Mountains, and from the Gulf of Mexico to the **Height of Land**. It occupies nearly one-half the area of the United States.

If we look at the map we shall see that the Mississippi receives the waters of large rivers, such as the **Ohio** and the **Tennessee** on the east, and the **Missouri**, the **Red**, and the **Arkansas** on the west. This clearly shows that the lands on either side of the river form the sloping sides of a great valley.

A large portion of the upper Mississippi Valley consists of **prairies**. Some of them are rolling, others as level as the sea. Most of them are treeless. These prairies were once covered by a **great shallow sea**; the fine soil was washed down from the mountains and deposited as sediment on the sea-bottom. A slow uplift of the continent afterward left this region dry land.

Before the prairies were cultivated they were covered in springtime and summer with grass and flowers. Boundless fields of wheat and corn now occupy large portions of them.

Westward of the Missouri and the 98th meridian are the **Great Plains**, a plateau extending to the Rocky Mountains. Their soil is covered, when in a natural condition, with nutritious grasses on which many thousand sheep and cattle feed. These plains are the great **grazing region** of the United States.

10. Climate.—The northern section has a temperate climate, with hot summers and cold winters. The climate of the southern portion is semi-tropical.

The soil is of great depth and fertility. It is composed for the most part of fine sediment left by the waters that once overflowed the valley; but in the northern half there is much coarser material left by the glacier that once overspread the northern part of the continent.

The climate of the Great Plains is remarkably dry. Agriculture depends, in many areas, upon irrigation; that is, distributing water over the fields by means of channels leading from reservoirs.

11. The Products of the Mississippi Valley are similar to those of the Atlantic Slope in corresponding latitudes. The leading products are cotton, sugar, hay, grain, tobacco, lumber, and minerals. The Mississippi Valley is the chief **agricultural region** of the country.

12. The Natural Advantages of this region are unsurpassed.

Its **soil** is unrivalled in depth and fertility.

Its **grazing lands** are among the most extensive in the world.

It contains some of the most valuable **timber lands** in the country.

The **Great Lakes** are on the northern borders of this region. They are really inland fresh-water seas. On their

waters many thousands of vessels carry on an active internal commerce.

The **Mississippi** and its **tributaries** drain the entire valley, and furnish water-routes whereby the products of one portion of this region may readily be transported to another. The lumber and wheat of Minnesota and Wisconsin are carried upon the Mississippi down to New Orleans, a distance of more than 2,000 miles; while the sugar, rice, etc., of the Gulf States may be transported upon the same waters to the States far away to the north.

THE PACIFIC HIGHLAND AND SLOPE.

13. The Pacific Highland embraces the Rocky Mountains



On the Great Plains. Scene on a Texas ranch. The cowboys have just roped a steer in order that they may examine the brand, or mark. Each ranch owner has his own brand.

and the **Sierra Nevada** and **Cascade ranges**, with the great elevated plateau lying between them.

The **Rocky Mountains**, with their snow-capped peaks, border the plateau on the east. They form the loftiest water-shed in the United States. Here are found the head waters of the longest rivers that flow eastward into the Mississippi, and westward into the Pacific.

The **Plateau Region** has an average elevation of 5,000 feet above the sea level, and is from 300 to 800 miles in breadth.

It is traversed by numerous ridges and mountain chains and is naturally divided into three regions, viz., the **Plain of the Columbia** on the north, the **Plateau of the Colorado** on the south, and between these the **Great Basin**, in which is the Great Salt Lake.

The **Sierra Nevada** and **Cascade ranges** form the western

PHYSICAL UNITED STATES.

Minerals.—What part of the country is the great mineral region? What are the principal minerals found here? What are the leading mineral products of the Atlantic Highlands? Name those found on the

Vegetation.—Name the grains raised in the Mississippi Valley. In



What part of the valley is the great "wheat belt"? The "corn belt"? The "hemp and tobacco region"? What portion of the country does the "cotton belt" include? The "sugar and rice region"? In what portion of the lowland is the orange raised? What are the agricultural products of the valleys of the Pacific Slope? What is the most important?

Which half of the United States most abounds in forests? Where are the great "forest regions" found? Where is the "forest region" of the Pacific Slope? From what part of the Atlantic Slope do we get pitch, rosin, tar, and turpentine? Where does the "live oak" grow? In which part of the country is the great "grazing region"?

boundary of the Plateau. They are really one chain, following the coast at a distance of from 100 to 150 miles.

Many of the peaks of the **Rocky Mountains** and the **Sierra Nevada** rise to the height of over 14,000 feet.

14. Climate.—The climate of the **Pacific Highland** is marked by extreme dryness. It has but little rain, except on the mountains, which are in the path of the westerly winds.

Owing to the absence of moisture, the air is rapidly heated and rapidly cooled. Often the temperature at noon will be 70° or 80°, and at sunrise below freezing-point.



On the Pacific Highland.—The Navajo District, showing the effect of the dry climate on vegetation.

15. Resources.

—This is one of the great regions of the world for the production of

the precious metals. In **gold** it ranks next to South Africa; in **silver** it is second only to Mexico.

The only natural vegetation of parts of the Plateau Region are the **sage brush** in the north, and the **cactus** in the south.

16. The Pacific Slope.—Leaving the **Plateau Region** and crossing the **Sierra Nevada** and **Cascade** ranges, we find ourselves upon the **Pacific Slope**, which extends from the summits of these mountains to the **Pacific Ocean**.



Pasadena Valley, California; Mount Lowe from Monk's Hill.

It includes the low valleys of **California**, **Oregon**, and **Washington**, and the **Cascade Mountains** and the **Coast Range** that borders the Pacific.

17. The Climate of the **Pacific Slope**, owing to the prevailing winds from the sea, is much milder than that of corresponding latitudes on the **Atlantic Slope**. The summers are cooler, and the winters so mild that many visitors spend the winter there.

The rains occur during the winter, which is known as the **rainy season**; the summer is called the **dry season**.

18. The Products and Resources of the **Pacific Slope** are extraordinary.

The mines of **gold** and **quicksilver**, and the **petroleum** wells are of great value. Vegetables and fruit attain a size that is almost incredible; and the yield of **wheat** is sometimes 50 bushels to the acre. Magnificent **forests** cover the mountain slopes. Trees are found measuring 40 feet in diameter. Facing the Asiatic continent, moreover, the **Pacific Slope** enjoys unrivalled advantages for carrying on **commerce** with the populous nations of **China** and **Japan**.

Review Topics.—Location and rank of the United States. What is the greatest distance from east to west? The least? How is the surface divided? Describe each natural division—surface, climate, products. What are the natural advantages of the **Atlantic Plain**? Describe the **Mississippi Valley**; extent; prairies; plains. Climate of the northern portion; southern. The plains. The products.

How can **Minnesota** and the **Gulf State** exchange products? Describe the **Pacific Highland**. The **Rocky Mountains**. The **Plateau region**. Width. How divided by mountains? The **Sierra Nevada**s. Height of peaks. The climate. The mineral wealth. The natural products. Describe the **Pacific Slope**. Compare its climate with that of the **Atlantic Slope**. Describe the summers and winters. The mines. Fruits and vegetables. Wheat. Forests. Commercial advantages.

XXII. STATES.—POPULATION.

1. The United States consists of forty-eight states, one district, two territories, and various island possessions.

2. Grouping of States.—The following is a convenient grouping of the states and territories.

New England States.

MAINE,	VERMONT,	RHODE ISLAND,
NEW HAMPSHIRE,	MASSACHUSETTS,	CONNECTICUT.

Middle Atlantic States.

NEW YORK,	DELAWARE,	WEST VIRGINIA,
NEW JERSEY,	MARYLAND,	(District of Columbia).
PENNSYLVANIA,	VIRGINIA,	

Southern States.

NORTH CAROLINA,	ALABAMA,	ARKANSAS,
SOUTH CAROLINA,	MISSISSIPPI,	TENNESSEE,
GEORGIA,	LOUISIANA,	OKLAHOMA.
FLORIDA,	TEXAS,	

Central States.

KENTUCKY,	KANSAS,	WISCONSIN,
OHIO,	IOWA,	MINNESOTA,
INDIANA,	NEBRASKA,	NORTH DAKOTA,
ILLINOIS,	MICHIGAN,	SOUTH DAKOTA.
MISSOURI,		

Rocky Mountain and Pacific States.

COLORADO,	NEVADA,	CALIFORNIA,
MONTANA,	IDAHO,	OREGON,
WYOMING,	UTAH,	WASHINGTON,
NEW MEXICO,	ARIZONA,	Alaska Territory.

Island Regions.—*Hawaii Territory*, the *Philippines*, *Porto Rico*, *Guam*, one of the *Ladrones*, *Wake Island*, and *Tutuila* and *Manua*, of the *Samoan group*.

The States may also be grouped as **Atlantic**, **Gulf**, **Inland**, **Lake**, and **Pacific States**. We sometimes speak of the "**Valley States**," meaning those in the **Mississippi Valley**; and the "**Cotton States**," meaning those in which cotton is the principal product.

3. Early Colonies.—The first English colony was established at **Jamestown**, **Virginia**, in 1607. In 1620 the Pilgrims founded **Plymouth Colony** in **Massachusetts**. Soon afterward **Maryland** was settled by English Roman Catholics, and **Pennsylvania** by Quakers.

The **Dutch** had settlements in **New York**, the **Swedes** in **New Jersey**, and the **Danes** in **Delaware**; but about 1664 these colonies became subject to the **English**, who proceeded to establish and acquire others, until their colonies numbered thirteen.

These were **Virginia**, **Maryland**, **Georgia**, **North Carolina**, **South Carolina**, **Delaware**, **Pennsylvania**, **New Jersey**, **New York**, **Massachusetts**, **Rhode Island**, **New Hampshire**, and **Connecticut**. They are often called the "**Old Thirteen**."

In 1776 they declared themselves **free**, **sovereign**, and **independent States**, and after a seven years' war their **independence** was acknowledged by **Great Britain**. They adopted a constitution in 1789, and established the government of **The United States of America**.

4. Acquisition of Territory.—Additional territory has been acquired by the United States, mainly by purchase. By these additions the area of the country has been increased fourfold.

In 1803 **Louisiana**, including the western half of the Mississippi Valley, was purchased from the French.

In 1819, **Florida**, which had been settled at St. Augustine by Spaniards in 1565, was purchased from Spain.

In 1845 **Texas**, having previously revolted from Mexico and established her independence, was annexed to the United States.

In 1848 **California**, with the territory lying between it and the Rocky Mountains, was ceded to the United States by Mexico. In 1853 the southern portions of **Arizona** and **New Mexico** were purchased from Mexico.

In 1867 **Alaska** was purchased from Russia.

In 1898 **Hawaii** was annexed, and **Porto Rico**, the **Philippine Islands**, and **Guam**, one of the Ladrões, were ceded by Spain after the Spanish war.

In 1900 the United States acquired **Tutuila** and **Manua**, islands of the Samoan group.

5. Inhabitants.—The inhabitants of the United States consist largely of the descendants of English colonists. But nearly every country of Europe has contributed to swell the population. Every year large numbers of new settlers arrive.

A census is taken by the general government of the United States once every ten years. By the census of 1900, the population was over 76,000,000; by the census of 1910 it was over 92,000,000.*

6. The largest cities in the United States are:

- More than 4,000,000 inhabitants—New York City.
- More than 2,000,000—Chicago.
- More than 1,000,000—Philadelphia.
- More than 500,000—St. Louis, Boston, Cleveland, Baltimore, and Pittsburg.
- More than 300,000—Detroit, Buffalo, San Francisco, Milwaukee, Cincinnati, Newark, New Orleans, Washington, Los Angeles, and Minneapolis.
- More than 200,000—Jersey City, Kansas City (Mo.), Seattle, Indianapolis, Providence, Louisville, Rochester, St. Paul, Denver, and Portland (Ore.).
- More than 100,000—Columbus, Toledo, Atlanta, Oakland, Worcester, Syracuse, New Haven, Birmingham, Memphis, Scranton, Richmond, Paterson, Omaha, Fall River, Dayton, Grand Rapids, Nashville, Lowell, Cambridge, Spokane, Bridgeport, and Albany.

Review Topics.—How many States and Territories in the United States? Divisions. Which are the "Valley States"? The "Cotton States"? The first English colony. The Plymouth Colony. The Roman Catholics. The Quakers. The Dutch. The Swedes. The Danes. What nation acquired possession of the Dutch, Swedish, and Danish colonies? What were the "Old Thirteen"? What occurred in 1776? How was Louisiana acquired? Florida? Texas? California? Arizona? Alaska? Hawaii? Porto Rico? The Philippine Islands? What was the population in 1910? What city has more than 4,000,000 inhabitants? Which had more than 1,000,000? More than 500,000? Between 200,000 and 500,000?

XXIII. GOVERNMENT.

1. Government.—The Departments of the United States Government are three: the **Legislative**, **Executive**, and **Judicial**.

2. The Legislative Department, or Congress, consists of the **Senate** and **House of Representatives**.

The **Senate** is composed of two Senators from each State, chosen by the Legislature, to serve six years.

The **Vice-President** is the presiding officer of the Senate.

* Not including our island possessions, except Hawaii.

The **House of Representatives** consists of members chosen by the people to serve two years. Each State sends one representative for every 211,877 inhabitants.

One of the members of the House of Representatives is elected to preside at its meetings, and is called the **Speaker**.

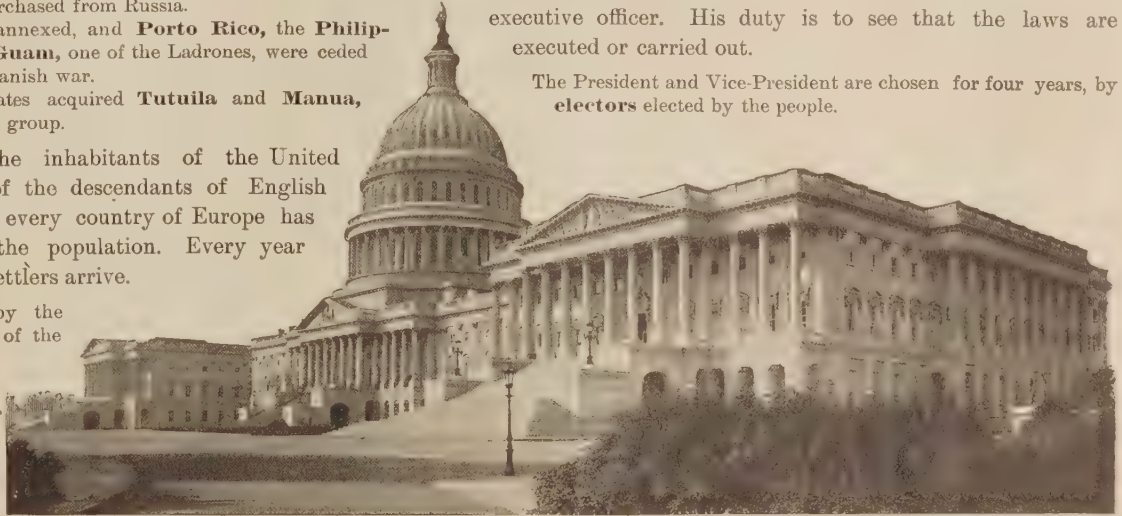
The **Laws** are made by Congress, with the approval of the President.

If the President does not approve of any bill passed by Congress, he may veto (refuse to sign) it, but it may still become a law by a two-thirds' vote of each House.

Congress holds its sessions in the Capitol at Washington.

3. Executive Department.—The President is the chief executive officer. His duty is to see that the laws are executed or carried out.

The President and Vice-President are chosen for four years, by electors elected by the people.



The National Capitol.

4. The Judicial Department comprises the federal courts. The **Supreme Court** consists of a **Chief-Justice** and eight **Associate Justices**, appointed by the President, with the consent of the Senate.

5. State Government.—Each State has a government similar to that of the United States.

It has a **Legislature** consisting of two houses, a **governor** elected by the people, and a **supreme court**. Neither Congress nor the legislature of a State has the right to make any law contrary to the Constitution and laws of the United States.

Review Topics.—The departments of the Government. The Legislature. Who presides in the Senate? Of what does the House of Representatives consist? Presiding officer. What body makes the laws? The President's veto. Who is the chief executive officer of the United States? Term of office. How chosen? The Supreme Court. How is each State governed?

XXIV. INDUSTRIES.

1. Manufacturing now excels all other industries of the United States in the value of its products.

Our great **factories** are chiefly in the cities east of the Mississippi and north of the Ohio and Potomac rivers.

The **ten leading products of manufacturing industries** are:—

- | | |
|---|--|
| 1. Iron and Steel and their Manufactures. | 6. Leather and Leather Goods. |
| 2. Textiles. | 7. Railroad Cars, Automobiles, and Other Vehicles. |
| 3. Preserved Meats. | 8. Flour and Meal. |
| 4. Timber and Lumber Products. | 9. Printed Matter. |
| 5. Clothing. | 10. Malt and Distilled Liquors. |





means of transportation do the States of the Mississippi Valley possess ? Through how many degrees of latitude does the Mississippi flow ?

In addition to the rivers and lakes, what other means of transportation has the United States ? By what water routes may a farmer in Illinois send grain to the Atlantic seaboard ?

Where is Cape Cod ? Sandy Hook ? Cape May ? Hatteras ? Cape Sable ?

Where is Washington ? New York ? Boston ? Philadelphia ? Baltimore ? Chicago ? Cleveland ? Cincinnati ? Louisville ? What city near the mouth of the Missouri ? What city near the mouth of the Mississippi ? Besides New Orleans, what are the two great Gulf ports ? What great port on the Pacific coast ? Where is Savannah ? Norfolk ? Each city of Portland ? Buffalo ? Detroit ? Milwaukee ?

2. Agriculture is the occupation of about one-fourth the people of the United States, and its products rank next to manufactures in value. The leading products north of the parallel of 36° north are corn, wheat, oats, rye, barley, hay, potatoes, flax, hemp, and tobacco.

South of this parallel is the region of cotton, sugar, and rice.



Domestic Commerce: Boats loaded with grain on the canal at Williamsport, Maryland. Notice the Potomac River and railroad tracks.

3. Stock raising is the third important industry. In Texas and the States of the Great Plains, cattle and sheep are raised in vast numbers. Other animal products are the **pork** and **wool** of the Central States, the wool of the Pacific States, and the **milk**, **butter**, and **cheese** of the Middle Atlantic States.

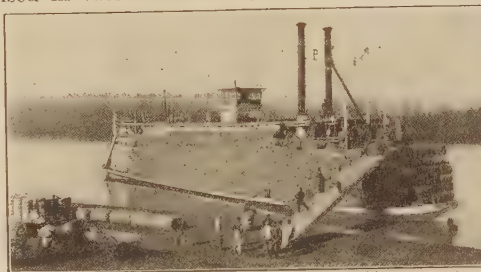
4. Mining is a growing industry. The **precious metals** and **copper** are found mainly in the Rocky Mountain and Pacific States; **coal** and **iron** in the Appalachian and central regions.

5. Lumbering is a greater industry in the United States than in any other country. It produces over seven hundred million dollars annually. The chief **forest regions** are in the Pacific States, the Lake States, and in the Southern States.

6. The Fishing interests of the country are important. They engage the attention mainly of **New England**, the **Chesapeake Bay States**, the **Lake States**, and the **Pacific States**.

7. Domestic Commerce.—The products and industries of the different sections of the country differ widely. This gives rise to a large and growing domestic commerce. This commerce is greatly aided by excellent transportation facilities.

The **Mississippi**, with its 33 navigable tributaries, affords a cheap waterway for trade between the different States of the Mississippi Valley and connects them with the Gulf. The Mississippi is now connected with the Great Lakes by the Michigan and Illinois Canal. The **Great Lakes**, with the Welland and other Canadian canals and the St. Lawrence, form a second great water route.



Domestic Commerce: A steamboat being loaded with cotton on the Yazoo River, one of the tributaries of the Mississippi.

The **Erie Canal** connects the Great Lakes and the Hudson River, and forms a third water route.

By means of these and a vast system of railroads the different parts of the country readily exchange products.

8. The Foreign Commerce of the United States is very large, and is steadily growing. We import about \$1,540,000,000 worth of merchandise, and export over \$2,100,000,000. This means that we produce a great deal more of some things than we need for our own use.

The value of our **imports** in 1911 was about \$650,000,000 more than in 1901, and the value of our **exports** in 1911 was about \$630,000,000 more than in 1901.

Our leading **exports** are cotton, meats, breadstuffs, iron and steel wares, copper, and petroleum. The demand for our manufactured products is steadily increasing. Our **largest customers** are Great Britain, Germany, Canada, France, the West Indies, and the Netherlands.

About half of our exports go to Great Britain. A very important trade is carried on with the West Indies and South America in flour, lumber, and manufactures. Germany buys much of our petroleum.

The leading **imports** are dry goods and iron wares from Great Britain; sugar and fruits from the West Indies; coffee, hides, rubber, and wool from South America; teas and raw silk from China and Japan; chemicals from Germany; silks, laces, and gloves from France; and linen goods from Great Britain and Germany.

Review Topics.—What are the five most important industries of the United States? Where is each carried on? What is said of grazing? Mining? Manufacturing? Fishing? Domestic Commerce? The great commercial water routes? The Mississippi trade? The Erie Canal? The Canadian canals? Describe other means of transportation. The foreign commerce of the United States. Exports. Imports.



Domestic Commerce: A whaleback steamer passing from Lake Superior to Lake Huron through the "Soo" Canal.

MAP STUDIES.—Between what parallels do the New England States lie? Which is the largest? The smallest?

Maine.—What is the general slope of Maine? What lakes have outlets to the sea through the Penobscot? Kennebec? Androscoggin? The St. John? What large island on the coast? What bays? Cape? What city on Casco Bay? Where is Bangor? Bath? Lewiston? Biddeford? What and where is the capital?

New Hampshire.—What mountains in the northern part of this State? Name the largest lake in this State. Describe the course of the Connecticut River. Where is Concord? Nashua? Manchester? Portsmouth? Dover? What is the capital?

Vermont.—Near what parallel is the northern boundary of this State? What mountains traverse this State from north to south? Through what rivers do the waters of Lake Champlain reach the sea? What lake in the northern part of the State? What rivers in Vermont are tributary

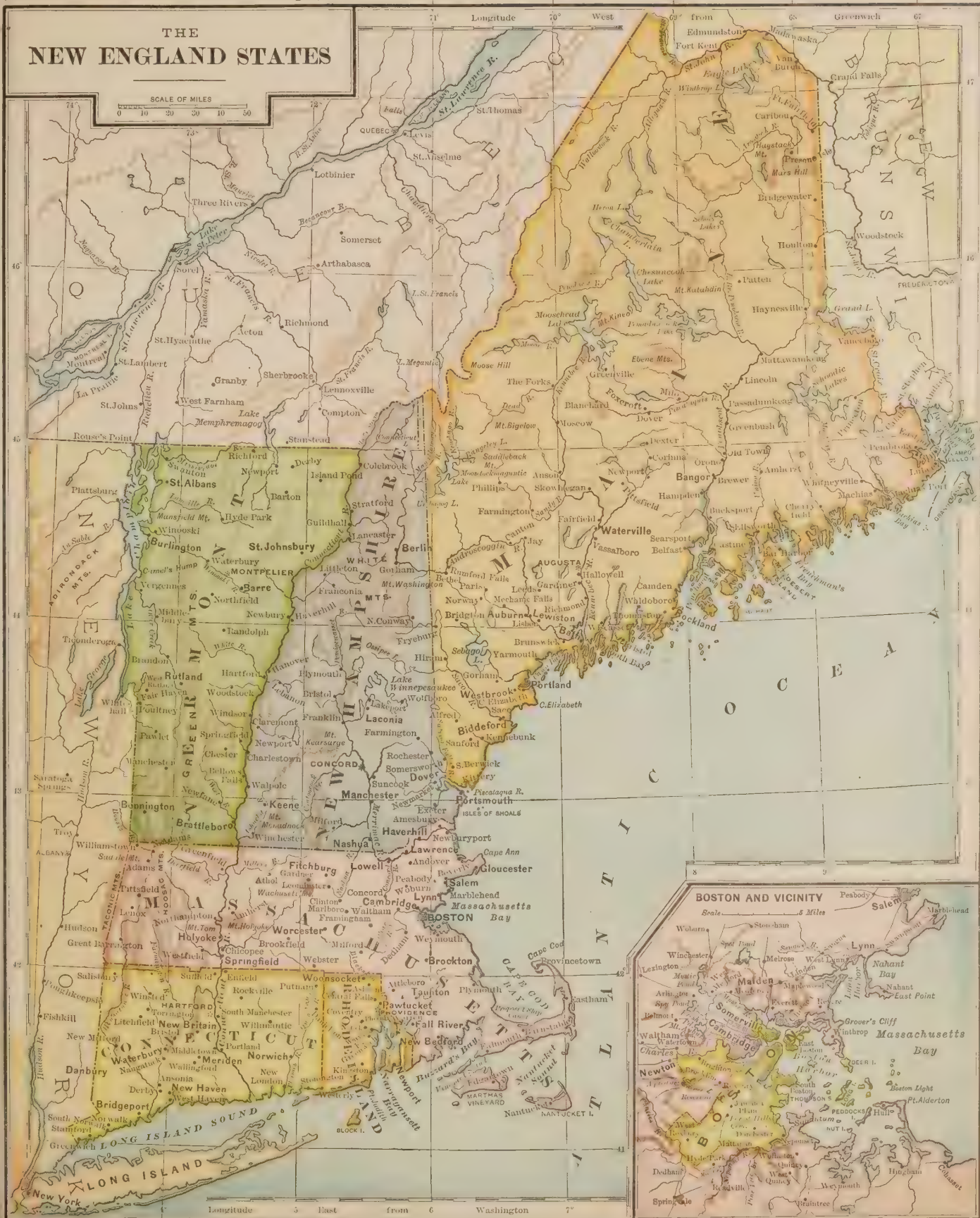
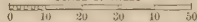
to the Connecticut? Montpelier? Rutland? St. Albans? Brattleboro? What is the capital?

Massachusetts.—What part of the State is mountainous? Which are the principal peaks? What part of the State is drained by the Connecticut? By the Merrimac? Name the capes. What bay on the eastern coast? Southern coast? What is the capital? Where is Lowell? Lawrence? Salem? Lynn? Springfield? Worcester? Pittsfield? Fitchburg? Fall River? Taunton? Cambridge? Northampton?

Rhode Island.—What bay in the south-eastern part of the State? What city at its head? What point on the coast? What is the capital? Where is Newport?

Connecticut.—In what direction does the surface slope? What rivers cross the State? Into what do they flow? What and where is the capital? Where is Middletown? New Haven? New London? Waterbury? Meriden? New Britain? Danbury?

SCALE OF MILES



XXV. NEW ENGLAND STATES.



The rocky New England coast at Marblehead, Mass.

STATE.	Area in Sqr. Miles.	Population, 1910.	Capitals.	Chief Cities and their Population.
Maine.....	33,040	742,371	Augusta.....	Portland..... 58,571
New Hampshire..	9,341	430,572	Concord.....	Manchester... 70,063
Vermont.....	9,564	355,966	Montpelier....	Burlington... 20,468
Massachusetts...	8,266	3,366,416	Boston.....	Boston..... 670,585
Rhode Island....	1,248	542,010	Providence.....	Providence... 224,326
Connecticut.....	4,965	1,114,756	Hartford.....	New Haven... 133,605

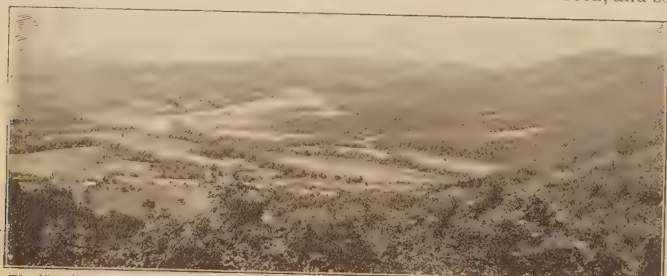
1. Position and Area.—The New England States are situated in the northeastern part of the United States. The six taken together are not as large as Nebraska, and they are less than one-third the size of Texas.

2. Coast.—The coast line of these States, especially that of Maine, has a very jagged appearance, and a number of rocky islets fringe the shores—sure signs that there is no lack of deep water and good harbors.

An irregular coast like that of New England is the result of a sinking of a rocky coast. This causes the water to flow up the valleys and the mountain ridges to become capes and headlands. A regular coast line on the other hand, like that of the South Atlantic Plain, is a result of a rising of the land. The level ocean bed becomes the coast, and is usually flat and sandy. Good harbors on such coasts are usually at the mouths of rivers.

3. Surface.—The surface of New England is rugged and hilly. These States are traversed from northeast to southwest by mountains which extend from Canada nearly to Long Island Sound. They are a part of the Appalachian System. Name the ranges. The eastern section is an upland broken by a succession of hills, with an occasional solitary mountain rising above the plateau. This is a **Piedmont** section.

The mountains were once higher than they are now, and the Piedmont hills were once mountains, but they were gradually worn away. Some mountains, like Mount Monadnock, were of harder rock, and so



The New England Plateau in Massachusetts, showing the Connecticut river below Mount Holyoke.

were not worn down like the others. Mountains such as this are called **Monadnocks**.

Along the southeastern part of Massachusetts is a belt of lowlands, the only coastal plain in New England.

The **White Mountains**, after those of North Carolina, are the highest east of the Rocky Mountains. Mount Washington, in New Hampshire, is 6,279 feet high; Mount Mitchell, among the Black Mountains in North Carolina, is only 432 feet higher.

4. Lakes and Rivers.—A marked feature of New England is the great number of **fresh-water** lakes scattered over its surface.

These were made by an ancient **glacier** which once overspread this entire region. As it moved toward the sea it scoured out valleys or built dams across them with the rock-waste and boulders which it dropped in melting. The mass of material left by a melting glacier is called a **moraine**. These moraines often dammed up streams and changed their courses, thus forming **waterfalls** and **lakes**, and altering the appearance of the country.

The most important rivers are the **Connecticut**, navigable to Hartford; the **Merrimac**, which, with its tributaries, furnishes water-power for more factories than any other river in the world; the **Penobscot**, navigable to Bangor; and the **Kennebec**, navigable to Augusta.

If we consider how close to the sea the hilly Piedmont approaches, we shall understand that the streams which



View at Manchester, N. H., showing factories along the Merrimac river.

flow thence to the sea must have a great descent, with rapid currents and falls, affording abundance of **water-power**. These rapid streams have contributed to make New England the leading manufacturing district of the country.

5. Climate.—The winters of New England, by reason of the latitude, are long and cold; the summers are short and hot.

The nearness of these States to the sea has little effect upon their climate, because the prevailing winds are from the land. A cold current from the Arctic Ocean flows near the coast, so that the east winds are always raw and chilly.

6. Resources.—The most important **minerals** are the granite of Maine, New Hampshire, and Massachusetts; the slate and marble of Vermont; and the red sandstone of Connecticut. Metallic ores in workable quantity are rare.

The **soil** in the river valleys is fertile, but in the uplands it is not well adapted to agriculture.

The numerous rapid rivers, the forests, fisheries, and good harbors shape the **leading occupations** of this section.

7. Industries.—The inhabitants of New England are chiefly engaged in manufacturing, commerce, shipbuilding, stone quarrying, and fishing.

Manufactures.—This region is scarcely excelled in the world in the variety and amount of its manufactures.

The leading are cotton and ery, hardware, firearms, rubber goods, boots and shoes, silverware, and electrical machines.

Small wares, also, such as pins, needles, buttons, and combs, are produced in great variety.

A large proportion of the machinery for making textile goods, and much of the woolen, cotton, and leather goods manufactured in the United States are produced in New England.

Commerce.—New England buys a great amount of food for her inhabitants, and also large quantities of raw materials, such as cotton, wool, hides, and rubber, for her many mills and factories. She sells her manufactured articles, which are shipped to all parts of the world. All this makes a large foreign commerce and a very extensive trade with other parts of our own country.

The principal exports are textiles, boots and shoes, other manufactured articles, lumber, granite, and salt fish.

Fisheries.—Boston, Gloucester, and Newburyport are the chief towns engaged in the fisheries; they are all in Massachusetts. Their fishing-grounds for cod and mackerel are, however, largely on the Banks of Newfoundland.

8. The Mountains, Lakes, and Seashores of New England

are every summer visited by thousands of people, who wish to get away from the city during the hot season.

Review Topics.—Area, capital, and chief city of each New England State. The coast line. What advantage arises from it? Describe the surface of New England. What mountains in the west? The Coastal Plain. What is the loftiest mountain? How were the lakes formed? Name the most important rivers. Describe the Merrimac. Why is there ample water-power? Effect on industries. The climate. Prevailing winds. Mineral resources. The soil. What determines the leading industries? Name the chief occupations. Rank as a manufacturing region. The leading articles produced. The commerce. Exports. Fisheries.

XXVI. NEW ENGLAND STATES (Continued).

1. Maine.—Maine, the largest of the New England States, is the most easterly State in the Union.

It ranks high in manufactures of textiles, paper, lumber, in fisheries, and in the harvesting of ice. Its forests of pine have made it first in the building of wooden ships.

articles of manufacture woolen goods, machin-



Four steps in the manufacture of shoes at Brockton, Mass.: 1. Cutting the soles.



2. Cutting the upper.



3. Stitching the upper.

England is carried port, especially in St. Lawrence river



4. Polishing heels and soles.

Bangor is the great lumber market of the State.

Lewiston, Biddeford, Waterville, and Augusta, the capital, are all located at the falls of rivers, and are important manufacturing towns. The leading product in each is cotton goods. **Auburn** has large shoe factories, and **Lewiston**, woolen mills. **Bath** is famous for its lumber trade and shipbuilding. **Westbrook** manufactures paper and cotton and silk goods. **Rockland** supplies much of the lime used in the Atlantic States.

3. New Hampshire.—This State is often called the "Granite State," because of the abundance of its granite rock, and the "Switzerland of America," because of the beauty and grandeur of its lake and mountain scenery. The White Mountains are the chief natural feature of the State. They contain Mount Washington, the highest point in New England. The State has only a few miles of seacoast, and hence its people are little given to seafaring.

They are largely engaged in working quarries of stone. Grazing is an important occupation; but the most valuable industry is manufacturing; and boots and shoes, cotton and woolen goods, lumber and paper, are the chief articles made.

4. Cities.—**Manchester**, the largest, and **Nashua**, the second city, are located at falls on the Merrimac. They are noted for their boot and shoe factories and cotton mills.

Concord, the capital and third city in the State, contains extensive car shops of the Boston and Maine Railroad, and is celebrated for the manufacture of wagons and coaches. Granite, belting, and silverware are other leading manufactured products of Concord.



Making paper at Portland, Maine: Rags and wood fiber are ground into pulp. This is pressed into sheets by passing through many iron rollers which dry and finish it.

Portsmouth, on the Piscataqua river, is the only seaport in New Hampshire. It has an excellent harbor, upon which directly across

the border at Kittery, in Maine, is one of our finest navy yards.

Dover manufactures cotton goods. **Berlin** has lumber mills and paper factories. **Hanover** is the seat of **Dartmouth College**.

5. Vermont.—Vermont (vert, green; mont, mountain), so called from the Green Mountains which traverse it, is an inland State.

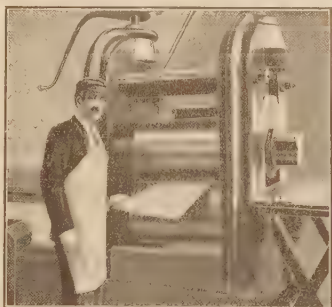
It is a fine wool-growing, stock-raising, and dairying country, and is specially famed for its horses. In the production of maple sugar it excels all other States. Its manufactures are steadily increasing, especially those of lumber, paper, and textiles.

Its quarries of marble, granite, and slate are extensive and valuable.

6. Cities.—**Burlington**, the largest city, is on Lake Champlain. It is extensively engaged in the lumber trade.

Montpelier is the capital. **Rutland** is located near important marble quarries. **Bennington** manufactures textiles. **Barre** has marble and granite works. **St. Johnsbury** manufactures weighing scales.

7. Massachusetts.—Massachusetts, the "Bay State," is the wealthiest and one of the New England States. It is largely engaged in the manufacture of boots and shoes, rubber, cotton and woolen goods. In commerce and wealth it is one of the most prominent.



Making solid silverware at the Gotham works, Providence, Rhode Island. 1. Showing steel rollers which press the silver bars into sheets.

8. Cities.—

Boston is the capital of Massachusetts, and the largest and most important city of New England. It is distinguished for its places of historic interest.

Boston has a splendid harbor and is the center from which the chief railroads of New England radiate. Its imports rank in value next to those of New York. It receives cotton, wool, hides, coal, and other



View of Boston, showing the State Capitol, the famous Boston Common, and Tremont Street, a leading business thoroughfare. On the Common next to the street are the entrances to the subway.

The largest manufacturing establishments for cotton and woolen goods are at **Lowell**, **Fall River**, and **New Bedford**. **Lawrence** leads in woolens. **Lynn**, **Haverhill**, and **Brockton** lead in boots and shoes; **Worcester** in textile machinery, wire rope, and woolens.

At **Springfield** is an armory of the United States where rifles for the public service are made. **Somerville** has great meat-packing establishments. **Malden** manufactures rubber boots and shoes; **Salem**, boots and shoes, and leather. **Holyoke** manufactures paper and textiles. **Pittsfield** makes textiles, paper, and machinery. **Taunton** is noted for the manufacture of cotton, stoves, and silver and plated ware.

9. Rhode Island.—Rhode Island is the smallest, but one of the most densely populated States. It is largely engaged in manufacturing woolen and cotton goods, jewelry, machinery, electrical apparatus, silverware, and silk goods.

10. Cities.—**Providence**, the second city in New England, and also the State capital, has a large commerce and ex-



2. Showing how the sheets are hammered into vessels.



3. A workman decorating a silver vase.

tensive manufactures of worsteds, jewelry, machinery, silverware, and cotton goods. It is the seat of **Brown University**.

Newport is beautifully situated in one of the finest harbors in and is noted as a

on one of the New England, summer resort.

Pawtucket manufactures textiles and thread. It has the oldest cotton mill in the United States; **Woonsocket**, worsteds; and **Central Falls**, cottons.

MAP STUDIES.—Between what parallels do these States lie? Which State is most mountainous? Which border on the Great Lakes?

New York.—What mountains in this State? What lakes form part of the boundary? What rivers? What celebrated falls?

Describe the course of the Hudson. The Genesee, The Black. What lakes are drained by the Oswego River? How do their waters reach the sea?

What lake separates New York and Vermont? Where is Lake George? Trenton Falls? What two islands belong to New York (see small maps)? Where is New York City? Name its divisions. Where is Yonkers? Poughkeepsie? What and where is the capital? Where is Buffalo? What canal connects Buffalo and Albany?

New Jersey.—What portion of this State is mountainous? What river forms the western boundary? What bay the southern? Where is

Sandy Hook? What cape at the southern extremity of the State? What and where is the capital? Describe Newark; Jersey City; Paterson.

Pennsylvania.—What parallel forms the northern boundary? What river the eastern? What lake borders the northwestern corner? What large river crosses this State and flows into Chesapeake Bay? What part of the State is traversed by mountain ranges?

Through what part of the State does the Allegheny River flow? The Monongahela? Where do they unite? What city at their junction? Where is the Delaware Water-Gap? Where is Philadelphia? What is said of Harrisburg? Scranton? Reading? Lancaster? Erie?

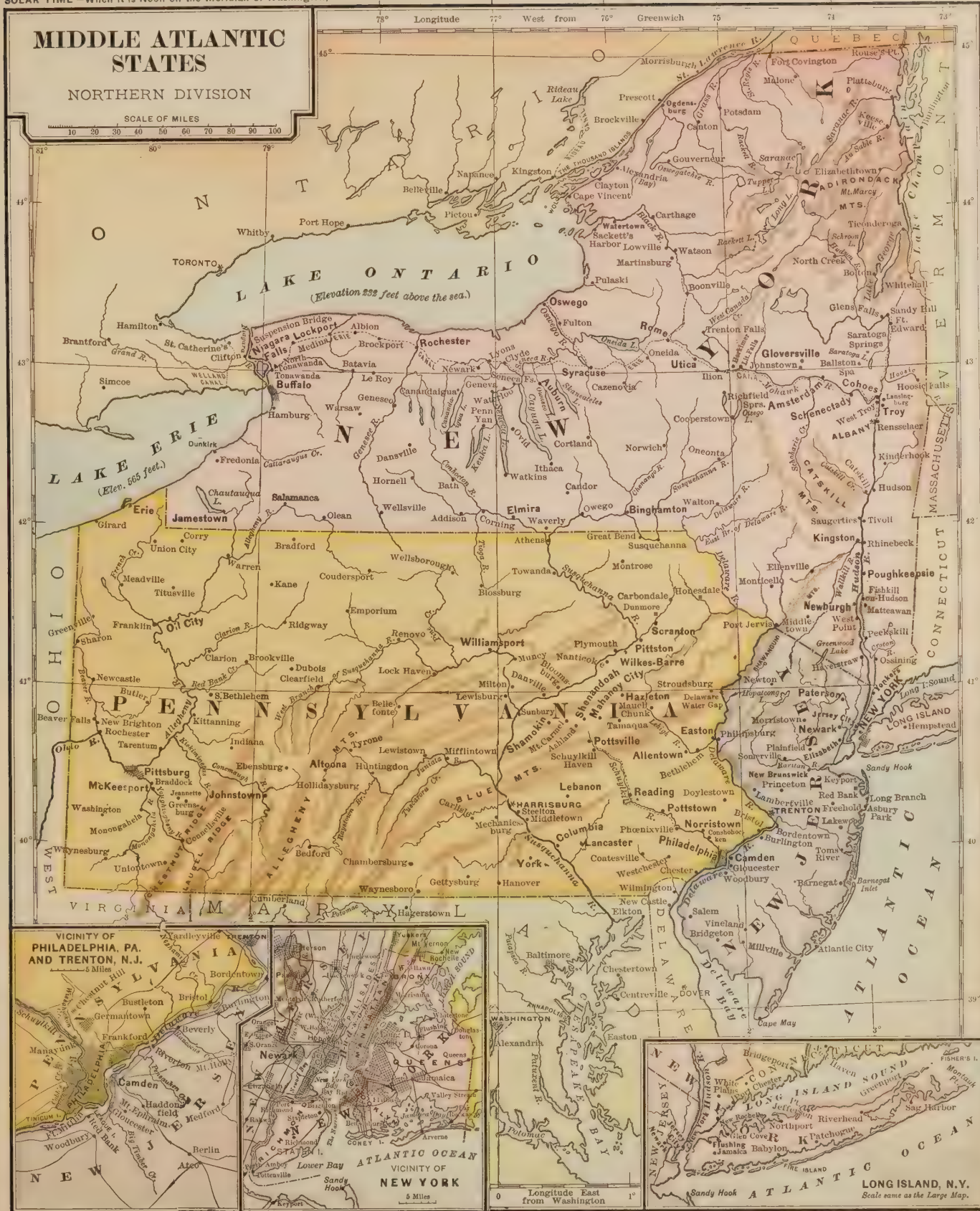
Routes of Travel.—How would you go by steamboat from New York to Albany? From New York to Philadelphia? How do steamers enter the Sound from New York? What is the East River?

MIDDLE ATLANTIC STATES

NORTHERN DIVISION

SCALE OF MILES

10 20 30 40 50 60 70 80 90 100



11. Connecticut.—Connecticut ranks high in the manufacture of brass and bronze products, machinery, cotton and silk goods, firearms and ammunition, woolen goods, hats, silverware, automobiles, rubber goods, and cutlery. A large part of the silverware and plated ware, and most of the pins and clocks used in the United States, are made here.

It is largely engaged in the coasting trade.

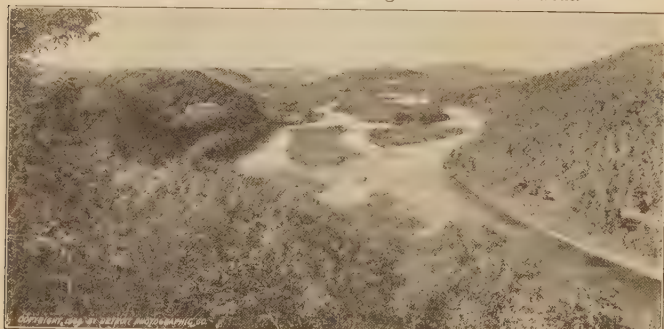
The valley of the Connecticut is very fertile. Hay and tobacco are the leading farm products.

12. Cities.—**Hartford**, the capital, is at the head of navigation on the Connecticut, and has large insurance and manufacturing interests. **New Haven** is the seat of **Yale University**, one of our old and famous educational institutions. Its chief manufactures are firearms, machinery, rubber goods, and automobiles.

Bridgeport is the foremost city of the State in manufacturing; **New London** makes silk goods and machinery; **Stamford** makes locks.

Norwich is a center of cotton manufacture; **Waterbury** makes clocks, watches, and brass ware; **Meriden**, silver-plated ware; **New Britain**, hardware; **Danbury** as a hat manufacturing city ranks first in the United States; **Willimantic** is noted for thread and textiles; **Portland**, for its quarries of red sandstone.

Review Topics.—The largest New England State. Its chief manufactures. Describe Bangor. Portland. The important manufacturing towns. Augusta. Bath. What is New Hampshire often called? Coast-line. Principal industries. Concord. Manchester. Nashua. Dover. Keene. Portsmouth. Where is Dartmouth College? Important industries of Vermont. Its chief cities. The rank of Massachusetts in fisheries; manufactures; commerce and wealth. Describe Boston. Cambridge. Describe Worcester. Springfield. Lynn. New Bedford. Taunton. Which is the smallest State? In what engaged? Locate Newport. Describe Providence. What does Connecticut manufacture? Noted crop of the Connecticut Valley. Describe Hartford. New Haven. Bridgeport. New London. Portland. Other manufacturing towns in Connecticut.



Delaware Water Gap, where the Delaware River cuts its way through the mountains. The mountain tops, all on the same level, show that the region was once a plateau through which the valleys have been cut by the stream.

XXVII. MIDDLE ATLANTIC STATES.

STATE.	Area in Sqr. Miles.	Population, 1910.	Capitals.	Chief Cities and their Population.
New York.....	49,204	9,113,614	Albany....	New York...4,766,883
New Jersey.....	8,224	2,537,167	Trenton...	Newark...347,469
Pennsylvania.....	45,126	7,665,111	Harrisburg..	Philadelphia.1,549,008
Delaware.....	2,370	202,322	Dover.....	Wilmington..87,411
Maryland.....	12,327	1,295,346	Annapolis...	Baltimore...558,485
District of Columbia	70	331,069		Washington..331,069
Virginia.....	42,627	2,061,612	Richmond..	Richmond...127,628
West Virginia.....	24,170	1,221,119	Charleston..	Wheeling...41,641

1. Position and Area.—The Middle Atlantic States embrace nine degrees of latitude. They extend several degrees farther to the south than the New England States, and have a milder

climate and more varied agricultural productions. The two sections differ also in many of their leading pursuits.

New York alone is nearly three-fourths the size of all the New England States put together; while all the Middle Atlantic States united are about two-thirds the size of Texas.

2. Coast.—The coast-line of the Middle Atlantic States is remarkably indented. Its harbors are among the best on the Atlantic seaboard.

3. Surface.—Land that is formed of the rock waste that the rivers have brought down from the mountains is called **alluvial**. Level land that has been at one time the bed of the sea is called a **marine plain**.

The seaboard of the Middle Atlantic States, and of all the country to the southward, is partly alluvial and partly marine, and both together form the **Coastal Plain**.

The line where the Coastal Plain joins the Piedmont is marked by falls and rapids, as those of the Delaware at Trenton, the



The fall line at Richmond, Va., where the James River plunges from the Piedmont Plateau to the Coastal Plain. The rocks are granite and are the remains of an old mountain range now worn down.

Schuylkill at Philadelphia, the Patuxent near Baltimore, the Potomac near Washington City, the Rappahannock at Fredericksburg, and the James at Richmond. This line is often called the **Fall Line**.

Beyond the Coastal Plain and beginning at the Fall Line is the **Piedmont**, a broad and fertile strip of rolling and hilly country which, like the Piedmont plateaus of New England, was once very high mountainous country, but has been worn down.

Next we have the Mountain region crossed from northeast to southwest by the Blue Ridge, the Alleghenies, and other ranges of the Appalachian system.

In New York are the **Adirondack** and **Catskill Mountains** which are outlying spurs of the Appalachians. The former contains the loftiest peaks in this group of States, of which **Mt. Marcy** is the highest.

4. Drainage.—The Middle Atlantic States are divided by the mountains into two slopes, one of which inclines toward the southeast, and carries the drainage into the Atlantic Ocean; and the other to the northwest, with drainage both into the Great Lakes, by numerous small streams, and into the Gulf of Mexico through the Ohio and Mississippi rivers.

5. Rivers and Lakes.—The principal rivers of the eastern slope are the **Hudson**, one of the most important water routes to the sea; the **Delaware**, the **Susquehanna**, the **Potomac**, and the **James**. On the western slope are the **Allegheny**, the

Monongahela, and the **Great Kanawha**, all of which enter the Ohio.

The Hudson, the Delaware, the Susquehanna, the Potomac, and the James rivers have cut gaps in the mountains on their way to the Atlantic Ocean. The scenery about such **water-gaps** is often very wild and grand. The rivers are navigable up to the Fall Line.

The lakes are chiefly in the State of New York.

The **Falls of Niagara**, over which the water of the Great Lakes descends on its way to the Atlantic, are partly within this State.

6. Climate.—The Gulf Stream sweeps close to the shores of the Middle Atlantic States, and the winds from the sea temper their climate. Their northern section has a temperature similar to that of New England; the southern is much warmer.

7. Minerals.—Most of these States are rich in iron. Coal abounds in Pennsylvania, Maryland, and the Virginias; zinc in New Jersey and Virginia; salt in New York and West Virginia; and petroleum in Pennsylvania, New York, and West Virginia.

8. Pursuits and Products.—The leading pursuits are agriculture, manufacturing, mining, and commerce. The milder climate and richer soil of this section make agriculture more profitable than in New England.

The grains, orchard fruits, berries, and garden vegetables do well in all these States.

Still, so great is the town and city population of this

section, and also of New England, in comparison with their rural population, that as we pass in review State after State, from Maine toward the south, we find none of them producing corn and wheat enough for its own consumption until we come to Maryland.

This State produces corn and wheat to sell.

The hay and wool crops and the dairy products of New York and Pennsylvania are very large.

Virginia, Pennsylvania, and Maryland produce and export large quantities of tobacco.

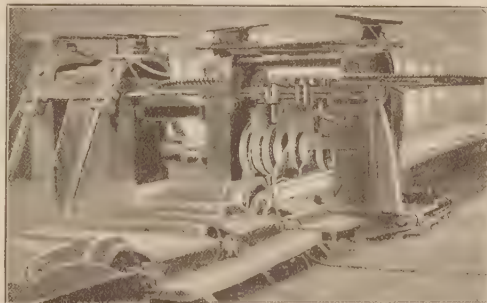
Manufacturing is the leading industry in these States, as in New England. The principal manufactures are iron and steel and their products, and clothing, silk, woolen and cotton goods, packed meats, and lumber products.

New York ranks first, and Pennsylvania ranks second, among the States in manufacturing.

The Commerce of the Middle Atlantic States is more important than that of any other section of the country.

The **Middle States**, like New England, buy enormous quantities of food products for the inhabitants, and raw materials for the manufactures.

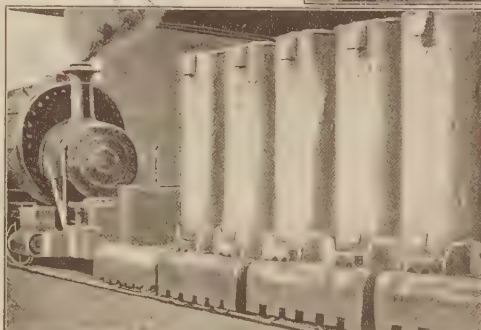
Most of the railways and canals which traverse our great agricultural and mining regions bring their freight to the seaboard cities of this section for export. All this com-



The steel ingot is heated again, rolled and cut into two or three lengths called blooms. The blooms are again heated and taken to the great rail mill where they are rolled into steel rails. This cut shows one of the rolling mills.

combined with the great trade caused by the sale of her manufactures, makes a vast commerce.

The **exports**, which include articles from all sections, are cotton, wheat, flour, corn, tobacco, live stock, petroleum, and manufactured goods.



This is a train of ingot molds, into which the melted steel is drawn from the converters. As it cools the mold is removed and an ingot of steel remains.

Review Topics.—Name the Middle Atlantic States. Compare with New England. Describe the coast-line. Harbors. Define alluvial country. Describe the Coastal Plain. The Piedmont Region. What Mountains traverse these States? Describe the slope of these States. Name the principal rivers of each. Describe the water-gaps. The lakes. Niagara Falls. The climate. The mineral productions. The agricultural productions. Which State produces bread-stuffs enough for home use? What are the chief crops of each State? The principal manufactures. What States rank first in manufacturing? Describe the commerce. Exports.

XXVIII. NEW YORK, NEW JERSEY, AND PENNSYLVANIA

1. New York.—New York, the "Empire State," ranks first among the States in wealth, population, manufactures, and commerce.

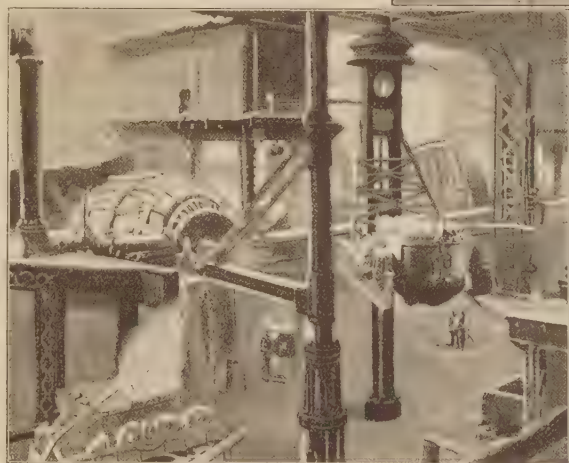
The climate of Western New York is tempered by the Lakes, which modify the west winds as they sweep over them. This part of the State has, moreover, a fertile soil. It is therefore a fine agricultural country. Wheat, corn, potatoes, oats, and the hardier orchard fruits flourish here.

New York is famous for its butter, hay, hops, and grapes.

The chief mineral resources of this State are its salt springs and iron ores. It has also valuable oil wells and mineral springs.

The falls and rapids of Niagara have a descent of about 300 feet. They therefore show that Lake Erie is on a terrace 300 feet above Lake Ontario. The smaller lakes are situated on the same terrace with Lake Erie, consequently the rivers, which carry the water of these lakes into Lake Ontario, have either to leap precipices or to descend by rapids in order to escape from this terrace. Their falls afford fine water-power.

2. Cities.—New York is the largest and richest city in



Making steel near Pittsburgh. The iron is melted in the furnace, poured into little cars called ladles, rolled to the mixer where it is treated, and then poured into the converter. This cut shows a converter ready to be loaded with melted iron from the mixer near by in the center. When it is loaded the converter is turned so that it stands as the other two converters. Hot air is forced through the melted iron, which raises it to white heat, burning out all the impurities and converting it into steel. During this process out of the mouth of the converter pour flames, burning gases and millions of sparks.



The harbor of New York consists of the Hudson river, the East river, and the bay in which they meet at the southern end of the island. This picture shows the East river looking toward Brooklyn. The long, white buildings are piers where ships tie; on the shore are warehouses where goods are stored. The ferryboat is coming from Brooklyn to Wall Street. The first steamship on your right goes to the Bahamas, the next to Cuba; next come the Mallory Line steamers. Near the Brooklyn Bridge are piers of steamboats sailing for cities on Long Island Sound. Most of the steamer piers are on the Hudson river.

America, and is second only to London among the great cities of the world. It comprises five boroughs, the most important of which are Manhattan and Brooklyn, which are connected by tunnels and suspension bridges.

In manufactures New York ranks first among our cities, and its commerce is nearly equal to that of all the other parts of the country put together.

The leading exports from New York are grain and flour, meat and dairy products, iron and steel goods, and petroleum. The imports are mainly raw sugar, coffee, textile goods, tobacco, and every sort of manufactured wares.

There are many great banks and trust companies in the city which have in them hundreds of millions of dollars. This money is used to carry on commerce and to establish great enterprises in all parts of the United States. This makes New York one of the great money centers of the world.

It is the seat of Columbia University and New York University.

Albany, the capital, has breweries, car and machine shops, knitting mills, and shirt factories.

It is at the head of navigation on the Hudson and is a terminus of the Erie and Champlain Canals.

3. Buffalo, at the western end of the Erie Canal, is a leading lake port and depot for grain, meats, coal, and lumber. It has extensive manufactures and a large commerce on the Lakes.

Rochester, on the Genesee, and **Oswego**, at the mouth of the Oswego River, possess fine water-power. Cameras, lenses, clothing, and boots and shoes are the leading products of Rochester, hardware, hosiery and knit goods of Oswego. In and near Rochester are renowned nurseries of fruits and flowers. **Syracuse** manufactures automobiles, machinery, and clothing.

From the salt springs near Syracuse, and the salt works in the district of **Warsaw**, nearly one-fourth of the annual salt product of the United States is obtained. **Utica** manufactures textiles, **Schenectady**, locomotives, and electrical machinery and supplies.

Troy makes collars and cuffs and has enormous laundry works. Its Polytechnic School is one of the best.

Saratoga is celebrated for its mineral springs.

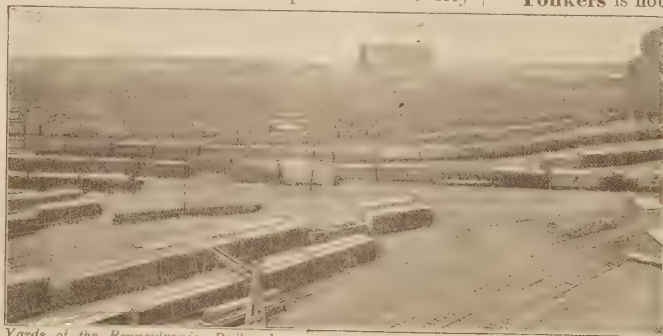
The country bordering upon the Hudson is in a high state of improvement. Handsome houses and beautiful grounds meet the eye at every turn, and lend enchantment to the scenery. **Newburg** and **Poughkeepsie** are manufacturing cities. The United States Military Academy is at **West Point** on the Hudson, and Vassar College, a noted college for women, is at Poughkeepsie.

Youkers is noted for carpets and rugs, machinery, and refined sugar; **Binghamton**, cigars and shoes; **Elmira**, fire engines, iron wares, and carriages; **Auburn**, harvesting machinery; and **Watertown**, air-brakes and carriages.

4. New Jersey.—The greater part of New Jersey lies within the very productive Coastal Plain of the Atlantic seaboard, and has a mild climate. It is, therefore, specially adapted to agriculture. The farms are largely devoted to market gardening, and supply New York and Philadelphia with fruits and vegetables.

The State is rich in mines of iron and zinc, and in deposits of marl, a kind of earth used for fertilizing.

This State ranks first in the manufacture of sewing machines and silk goods and in the dyeing of textiles, and second in the refining of petroleum.



Yards of the Pennsylvania Railroad at Jersey City, showing the freight cars loaded with articles which make up part of the commerce of New York.



Buffalo harbor: a grain elevator and a whaleback freight steamer.

5. Cities.—**Newark**, the largest city, is noted for copper refining, and the manufacture of leather, machinery, jewelry, malt liquors, paint, varnish, electrical goods, and chemicals. **Paterson** is celebrated for railway locomotives and silk goods; **Camden** for shipbuilding and leather. **Jersey City** and **Hoboken**, at the mouth of the Hudson, are largely engaged in shipping and manufacturing.

Princeton is the seat of Princeton University, one of the most celebrated educational institutions in the United States.

Trenton has extensive iron works and potteries. **Elizabeth** manufactures sewing machines and electrical goods. **New Brunswick** has large rubber works. **Atlantic City, Cape May, Long Branch, and Asbury Park** are noted summer resorts.



Manufacturing silk cloth in Paterson. The raw silk is imported. The first picture at the top of the page shows the silk being wound from the thread into bams so that it can be dyed. The next shows the threads being made into warp for weaving. The third shows the Jacquard Loom, which weaves the broadened silk.

6. Pennsylvania, the "Keystone State," is the leading mining State in the Union. It supplies about half the coal and much of the petroleum, and smelts, though it does not mine, about half the iron produced in the United States.

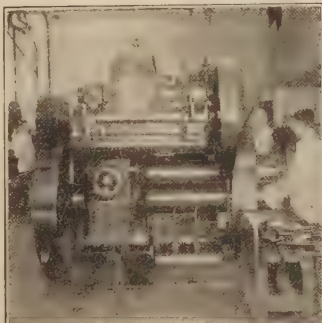
The coal of Pennsylvania is the chief article of fuel used throughout the Middle Atlantic and New England States for domestic purposes, for smelting, and for the production of steam power. Anthracite coal is found in the eastern part of the State, and bituminous in the western.

The petroleum of Pennsylvania yields the largest percentage of gasoline and illuminating oils, and is rich in paraffin. It is one of our chief articles of export, and is sent in ships fitted with tanks to nearly all parts of the world.

The crude oil is pumped from the wells to the seaboard and lake cities through iron pipes, of which there are several thousand miles. They spread through the oil region like a vast network. Some of the wells, when first bored, yielded several thousand barrels each day. The yield afterwards became less.

In manufactures, Pennsylvania ranks as the second State in the Union and leads all the rest in the making of iron and steel, machinery, leather, and glass. The State is second in the manufacture of textiles and refined petroleum.

The soil and climate are well adapted to agriculture. The crops of grain, potatoes, and tobacco, as well as the grazing products, are very important.



Making gold eagles in the Philadelphia mint 1. The gold bars are rolled into strips the thickness of an eagle.

7. Cities.—Philadelphia, the third largest city in the Union, is one of the first in manufactures and commerce. It manufactures woolen and cotton goods, clothing, printed matter, refined sugar, machinery, leather, steel ships, carpets, and packed meat. It is a great coal depot.

It is celebrated for its medical schools and academies, its charitable institutions, and its historic buildings. Here is the Old State House where the Declaration of Independence was signed. **Pittsburg**, the second city in the State, is situated at the head of the Ohio River. It now includes the former city of Allegheny and forms a very large center of population, and is extensively engaged in manufacturing iron and steel, and machinery. Petroleum and bituminous coal are sent out in vast quantities. **Erie** is the lake port of the State. It ships coal and iron. **Williamsport** is a lumber market and has silk mills. **Lancaster** is an important tobacco market.

The flourishing cities of **Scranton, Reading, Wilkes-Barre, and Pottsville** are in the coal region, and are all engaged in iron and steel and textile industries, and in the coal trade. **Harrisburg**, the capital, is largely interested in the manufacture of iron. **Altoona** has the largest car shops in the State; **Johnstown** makes steel and hardware; **Allentown**, steel and silk goods; **McKeesport**, steel and lumber; **Chester**, cotton and worsted goods, steel, and hardware.

Review Topics.—How does New York rank in wealth, in population, in commerce, in manufactures? For what products is New York famed? What are its minerals? How much higher is Lake Erie than Lake Ontario? Describe New York City. Albany. Buffalo. Rochester. Oswego. Troy. The Hudson. West Point. Why is New Jersey adapted to agriculture? What are its minerals? Describe Newark and Paterson. Jersey City. Hoboken. Princeton. Trenton. In what does Pennsylvania excel? How much iron does she produce? Coal? Petroleum? Manufactures? Important agricultural products? Describe Philadelphia. Pittsburg. Reading. Pottsville, Scranton, and Wilkes-Barre. What is the capital?

XXIX. DELAWARE, MARYLAND, VIRGINIA, AND WEST VIRGINIA.

1. Delaware.—Delaware lies altogether in the Coastal Plain. It is poor in minerals, but rich in soil, and favored



2. The strips being passed through a machine which cuts out disks.



3. Making the disks into gold eagles by stamping them with the steel dies.

with a moderate climate.

It is therefore a fine fruit country, and is specially famed for its peaches. Many people are employed in supplying the markets of Philadelphia, New York, and Baltimore with fruits and vegetables.

Wilmington, the principal city, is extensively engaged in manufacturing leather, and in building cars and steamships. Large gunpowder mills are located some miles outside the city.

SOLAR TIME When it is Noon on the Meridian of Washington.

11:44 A. M.

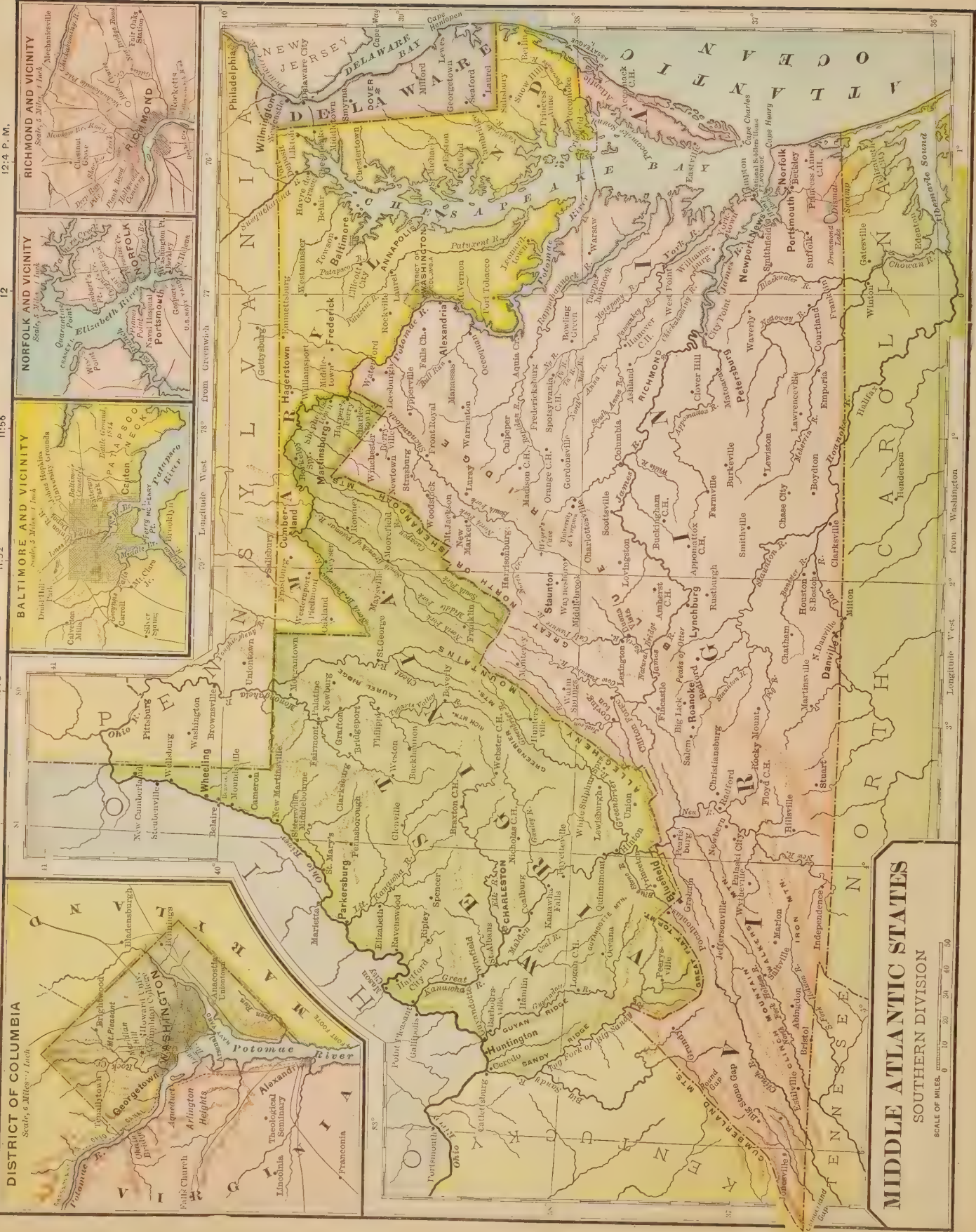
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12:4 P. M.



MIDDLE ATLANTIC STATES
SOUTHERN DIVISION

SCALE OF MILES. 0 10 20 30 40 50

Dover is the capital. **New Castle** has extensive fruit-canning industries.

2. Maryland.—The peninsula between the Delaware and Chesapeake Bays belongs in part to Delaware, in part to Maryland, and in part to Virginia. It rises but little above the sea level, and is without mountains, lying wholly within the Coastal Plain. The winter climate of this "Eastern Shore," as it is called, is one of peculiar mildness, due to the waters around it.

Tobacco, fruit, and grain are leading agricultural products.

The western part of the State is crossed by ranges of the Appalachians, which abound in coal, the mining of which, therefore, constitutes an important industry in this part of the State.



Baltimore.—The oyster fleet which brings the famous oysters up to the city.

Chesapeake Bay is remarkable for its fish and game. The oysters, shad, and herring obtained in Chesapeake Bay add millions of dollars a year to the wealth of the State. Its canvas-back ducks, terrapin, and oysters are unsurpassed.

From the **oyster-beds** of this bay the West is largely supplied. Fishermen obtain the oysters from the bed of the bay with long-handled rakes called tongs.

3. Cities.—**Baltimore** is one of the most important commercial and manufacturing centers. It manufactures clothing, copper, tin, and iron products, tobacco, and machinery, and has a large wholesale trade. Its chief exports are grain, meats, flour, cattle, lard, oil, and petroleum.

Its position near the head of Chesapeake Bay and the fact that railroads connect it directly with the leading commercial cities of the Mississippi Valley make it one of the important outlets for the products of that region. Lines of steamers connect it with domestic and foreign ports.

Baltimore is the seat of **Johns Hopkins University** and **Loyola College**.

Annapolis is the capital of the State, and the seat of the United States

Naval Academy. **Cumberland**, in the coal regions, has extensive manufactures of iron and steel.

Hagerstown manufactures automobiles, organs, lumber, furniture, and vehicles. **Frederick** is also a manufacturing town.

4. District of Columbia.—The District of Columbia, so called in honor of Columbus, embraced originally an area of 100 square miles. It was ceded in 1790 to the United States, in part by Virginia and in part by Maryland, for the purpose of establishing here the seat of the General Government.

In 1846 Congress ceded back to Virginia her portion, so that now the District contains only about seventy square miles.

It is governed by three Commissioners appointed by Congress.

5. Washington, the seat of government of the United States, is situated in the District, on the Potomac river. The site was selected by General Washington, and it is now one of the handsomest capitals in the world.



White House and grounds. The Capitol is in the distance.

Its most important public buildings are: The Capitol; the Congressional Library; the Treasury; the State, War, and Navy Departments; the White House, the home of the President; the Smithsonian Institution; the National Museum; the Agricultural Department; the Patent Office; the Observatory. The Washington Monument is 555 feet high.

6. Virginia.—Virginia, the oldest of the "Original Thirteen," is sometimes called the "Old Dominion." It has nearly the same area as Pennsylvania.

The Allegheny Mountains and the Blue Ridge cross the State nearly parallel to each other. The country lying between them, varying in breadth from 30 to 70 miles, is the celebrated Valley of Virginia. It is the garden-spot of the State.

MAP STUDIES.—Name the States on this map. What parts are mountainous? Which State has no sea-coast? What States nearly inclose Chesapeake Bay?

Delaware.—Has Delaware any mountains or large rivers? Within what region, then, does it wholly lie? What bay and river form the eastern boundary? What is the capital of the State, and where is Wilmington? New Castle?

Maryland.—Describe the surface of the western part. The eastern part. What river separates Maryland from Virginia and West Virginia? What great bay divides this State? What important river enters the head of this bay?

What large city near the mouth of the Patapsco river (see small map)? What is the capital? Where is Frederick? Hagerstown?

District of Columbia.—What river forms the southwestern boundary of the District? What important city is located here?

Virginia.—What mountain range traverses Virginia? What ranges on the western boundary? What mountains divide Virginia and Ken-

tucky? What river forms the northern boundary? How does the eastern portion of Virginia differ from the western? What great bay intersects the eastern part of Virginia? What two capes at its entrance? What rivers enter this bay? What three rivers break through the Blue Ridge? What is the capital? Describe Lynchburg; Alexandria; Fredericksburg; Staunton; Winchester; Danville; Lexington.

West Virginia.—What rivers form the western boundary? What rivers flow into the Ohio? What is the principal river in the State? What is the only river rising in this State and flowing into the Atlantic? Where does it break through the Blue Ridge? What river joins it here? What is the capital of the State, and where? Where is Wheeling? Parkersburg? Martinsburg? Huntington?

Routes of Travel.—On what bodies of water would you sail in going from Baltimore to Philadelphia? How would you go in a steamboat from Washington to Richmond? Norfolk to Wilmington? Annapolis to Fredericksburg? Wheeling to Charleston? What mountain ranges would you cross in going by rail from Richmond to Louisville?

The Luray Caves, which rival the Mammoth Cave of Kentucky in grandeur. **Weyer's Cave**, and the **Natural Bridge**, with its singular archway of rock, are all in this valley, and are objects of great interest to tourists.

Numerous rivers rise in the mountains and flow across the State into the Atlantic. Many of them, in the upper parts of their courses, furnish **water-power**.

Virginia is rich in coal, iron, manganese, and zinc, and is the third State in

the production of tobacco. The other agricultural products are corn, wheat, live stock, dairy products, vegetables, and peanuts.

It shares with Maryland the oyster-beds of Chesapeake Bay.

7. Cities.—

Richmond, the capital and largest city, has extensive tobacco factories, boot and shoe factories, flour mills, and large foundries and machine shops. It is the chief railroad center of the State.

Norfolk is the principal seaport, and has an important commerce. Its harbor is not surpassed in the United States. At **Portsmouth** is a navy yard of the United States.

Petersburg, **Lynchburg**, and **Danville** are important tobacco markets and manufacturing cities. **Roanoke** is a center of iron and steel manufactures.

Newport News has great shipyards, where the largest steel battleships, cruisers, and merchant ships are built. It is also an important shipping port.



A view of the harbor of Norfolk, showing the small boats loaded with fruits and vegetables brought in for shipment to Northern markets.

Alexandria, near Washington, is a place of considerable trade. The University of Virginia, one of our most noted seats of learning, is at **Charlottesville**. **Mt. Vernon**, a beautiful spot on the Potomac, was the home of Washington.

8. West Virginia.—In 1863 the northwestern portion of the "Old Dominion" was organized as a separate State under the name of West Virginia.

The mountains of this State abound in iron and coal; the



Building steel ships at Newport News, Virginia. The lower cut shows the steel framework of the ship which is upon the "ways." The second cut shows the same ship ready for launching. When the props are knocked out the ship slides down the ways into the water. Afterward the machinery is put in and the vessel finished.

forests yield the finest of timber. In the valleys are salt springs, petroleum wells, and mineral waters. Among the last are the celebrated **White Sulphur Springs**.

Manufactures of iron and steel are the most important industries, and lumber, soft coal, and petroleum are important products.

9. Cities.—**Wheeling**, on the Ohio, is the largest city. It is surrounded by hills richly stored with bituminous coal, and is largely engaged in the manufacture of iron and steel and tobacco. **Huntington** has extensive car shops and a large trade in coal and lumber. **Charleston**, on the Kanawha River, is the capital. It is the center of the coal and lumber trade.

Parkersburg, in the oil region, has large petroleum refineries.



A coal breaker in West Virginia. The coal comes from the mines in masses of varying sizes. It is here crushed, cleaned, and graded in sizes. It then drops into cars which carry it to market.

Review Topics.—The surface and soil of Delaware. Its productions. Manufactures of Wilmington. The capital. Of what peninsula does Maryland occupy a part? Chief Products. Describe Baltimore; Annapolis; Cumberland; Frederick; District of Columbia. How governed? Describe Washington. What is Virginia sometimes called? What mountains cross this State? Describe the Valley. The caves. The rivers. Minerals. Productions. Oyster-beds. Describe Richmond. Norfolk. Portsmouth. Newport News. Petersburg. Lynchburg. Roanoke. Alexandria. Charlottesville. Mt. Vernon. West Virginia. Products. Describe Wheeling. Charleston. Parkersburg.

XXX. SOUTHERN STATES.

STATE.	Area in Sqr. Miles.	Population, 1910.	Capitals.	Chief Cities or Towns and their Population.
North Carolina...	52,426	2,206,287	Raleigh	Charlotte 34,014
South Carolina...	30,989	1,515,400	Columbia.....	Charleston 58,833
Georgia	59,265	2,609,121	Atlanta	Atlanta 154,839
Florida	58,666	752,619	Tallahassee...	Jacksonville ... 57,699
Alabama	51,993	2,138,093	Montgomery...	Birmingham ... 132,685
Mississippi.....	46,865	1,797,114	Jackson.....	Meridian 23,285
Louisiana.....	48,506	1,656,388	Baton Rouge..	New Orleans ... 339,075
Texas.....	265,896	3,896,542	Austin	San Antonio... 96,614
Arkansas.....	53,335	1,574,449	Little Rock...	Little Rock 45,941
Tennessee.....	42,022	2,184,789	Nashville.....	Memphis 131,105
Oklahoma	70,057	1,657,155	Oklahoma City	Oklahoma City... 64,205

1. Position, Size, and Population.—The Southern States lie between the parallels of 25° and 37° north. They embrace about the same breadth of latitude as the Middle Atlantic and the New

England States together, and contain about one-fourth the area of the United States.

The **Population** of the Southern States, however, is less dense than that of New England and the Middle Atlantic States.

2. Coast.—The shores of the Southern States are bordered by a chain of long, narrow, sandy islands. Navigable inlets and passages occur here and there, but these are obstructed by sand-bars which prevent the entrance of the largest vessels.

3. Surface.—The surface of the Southern States resembles that of the Middle Atlantic States. Bordering the sea is the Coastal Plain, which in the Southern States attains its greatest breadth, being from 100 to 300 miles wide. (See map, p. 33.)

Next we have the Piedmont Plateau, and finally a mountain region embracing portions of the Appalachian system.

West of the Appalachian Mountains is the Cumberland Plateau, and beyond this lies the Mississippi Valley and the famous Mississippi river bottom or flood-plain which, south of Memphis, is one hundred miles wide. It is perfectly level and is liable to overflow.

West of the Mississippi, the principal elevations are the **Ozark Mountains** in northwestern Arkansas, and the outlying ranges of the **Rocky Mountains** in western Texas.

4. Forests.—As we go from the sea inland, we cross first a belt of swamps covered with the cypress, the palmetto, the magnolia, and the live oak, and next we come to a sandy belt overgrown with pines.

On the Piedmont Plateau we find oaks and other deciduous trees which extend up the mountain sides.

The **swampy belt** extends from Virginia to the Everglades of Florida, and along the shores of the Gulf except in Mississippi, where for some miles a low bluff comes down to the water's edge, to the Isthmus of Tehuantepec. It is noted for its pendent mosses, parasites, and flowers. The mosses hang down in long and graceful festoons from the branches of the trees, imparting to the forest scenery a striking and picturesque feature. Among the flowers are the magnolia and the yellow jessamine, the loveliest of them all.

The live-oak forests of this region furnish the most valuable timber for shipbuilding. The pine belt is famed for its timber, tar, pitch,



In the Coastal Plain.—Peach orchard near Marshallville, Ga.



An outlying range of the Rocky Mountains in western Texas.—A sheep ranch.

rosin, and turpentine, which are known in commerce as **naval stores**.

Naval stores are all products of the long-leaf or pitch pine. The trees are "boxed" by cutting a deep notch near the ground and are "blazed" by removing the bark above the box, as shown in the engraving. The sap, which is raw turpentine, flows into the boxes and is taken out and distilled. During distillation a vapor passes off and is condensed into a liquid, called **spirits of turpentine**. The substance left in the still is strained and, when cooled, becomes solid.

It is rosin.

Tar is obtained by burning sticks of pitch pine in a kiln. It flows out of the wood as a thick, black liquid. When boiled it becomes thicker and is known as pitch.

Many of the pine trees are very tall and straight, and make the finest **masts and spars** for ships. Large numbers of them are sent to the dockyards of France and England.

5. Rivers and Lakes.—The principal rivers of the Atlantic slope are navigable through the Coastal Plain to the hills of the

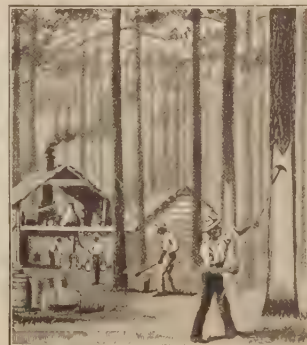
Piedmont Belt. The limits of navigation are marked by falls or rapids, which afford ample water power.

The Mississippi and its southern tributaries drain a portion of these States, and furnish important water routes for the produce and merchandise of this section.

6. Minerals.—In the mountainous parts of the Southern States are found coal, iron, copper, lead, gold, granite, and marble. Alabama and Georgia are richest in minerals.

Coal and iron are mined chiefly in Alabama, North Carolina, Tennessee and Georgia; **manganese** in Georgia; **gold** in Georgia and North Carolina; **sulphur** in Louisiana; **salt and petroleum** in Louisiana and Texas; **marble** in Georgia, Tennessee, and North Carolina. The **whetstones** of Arkansas and the **gypsum** of Texas are among the very best. The **phosphate** deposits of Florida and South Carolina are the richest known.

7. Climate and Occupations.—The climate of the northern portion of these States is mild and well adapted



Pine forest in the Atlantic Coastal Plain.—A turpentine orchard and still.

SOUTHERN STATES.

EASTERN DIVISION.

MAP STUDIES.—Between what parallels of latitude are these States situated? What two form the northern boundary? What States border on the Atlantic Ocean? On the Gulf of Mexico? The Mississippi River? Which State has the longest coast-line? Which State is without seacoast? In what mountain ranges do nearly all the rivers of these States take their rise? What general directions have they? Trace the ridge of sandhills extending across these States. (It is shown by a light mountain line. It divides the upland and lowland of these States.) What kind of climate should you expect to find in these States? Which of these States has the warmest climate? When it is noon at Washington, what time is it at Columbus, Georgia? When it is noon at Columbus, what time is it at Columbia, South Carolina?

North Carolina.—What is the eastern boundary? What mountain chain forms the western boundary? What mountain range crosses the State? Where is Mt. Mitchell? Where are Balsam Mountains? In what direction does the eastern part of the State slope? The western part? What mountains form the watershed of this State? Name the capes on the coast. What sounds in the eastern part? (A series of long, narrow, sandy islands separates these sounds from the sea.) Where is Roanoke Island? What river flows into the Atlantic near Cape Fear? What and where is the capital? Describe Wilmington. Charlotte. Fayetteville. Newbern.

Tennessee.—What mountains separate Tennessee and North Carolina? What mountains cross Tennessee? What is the western boundary? Name the principal rivers. What river receives all the drainage of this State? What large river crosses the State twice? What part of the State is traversed by the Cumberland? Are there any important rivers that flow into the Mississippi directly from this State? What is the capital? How is it situated? Describe Memphis. Knoxville. Chattanooga. Jackson.

South Carolina.—What mountain range forms the northwestern boundary? What river the western? Name the chief rivers. What two form the Santee? What is the Wateree called in North Carolina? What river do the Saluda and Broad form? Where is the Great Pedee? What river east of the Pedee? Where is Edisto Island? St. Helena? Sullivan's Island? What large city between the mouths of the Ashley and Cooper rivers? Name the capital. Describe Columbia. Greenville. Spartanburg. Newberry.

Georgia.—What part is mountainous? Name one range in the northwest. Where is the Okeef-no-kee Swamp? What parallel forms the northern boundary? What river the eastern? What river a part of the western? What river a part of the southern? Describe the course of the Chattahoochee. The Flint. What two rivers unite to form the Altamaha (*Al-ta-ma-haw*)? What river south of the Savannah? Where is the Allapaha? Name the islands on the coast. Where is Savannah? What is the capital? Describe Augusta. Columbus. Athens. Macon.

Florida.—What natural division of land is this State? In what part of the State are most of the towns? Describe the course of the St. John's river. Of the Suwanee. Name the largest lake. Where are the Everglades? Name the capes on the coast. What bays on the coast? Where are Florida Keys? Where is Key West, the most southerly town in the United States? Dry Tortugas? Where is the capital? Describe Pensacola. Jacksonville. Fernandina. St. Augustine.

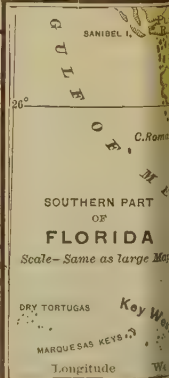
Alabama.—What part of Alabama is mountainous? What two rivers flow into Mobile Bay? What rivers form the Alabama? Describe the course of the Coosa. Of the Ala-

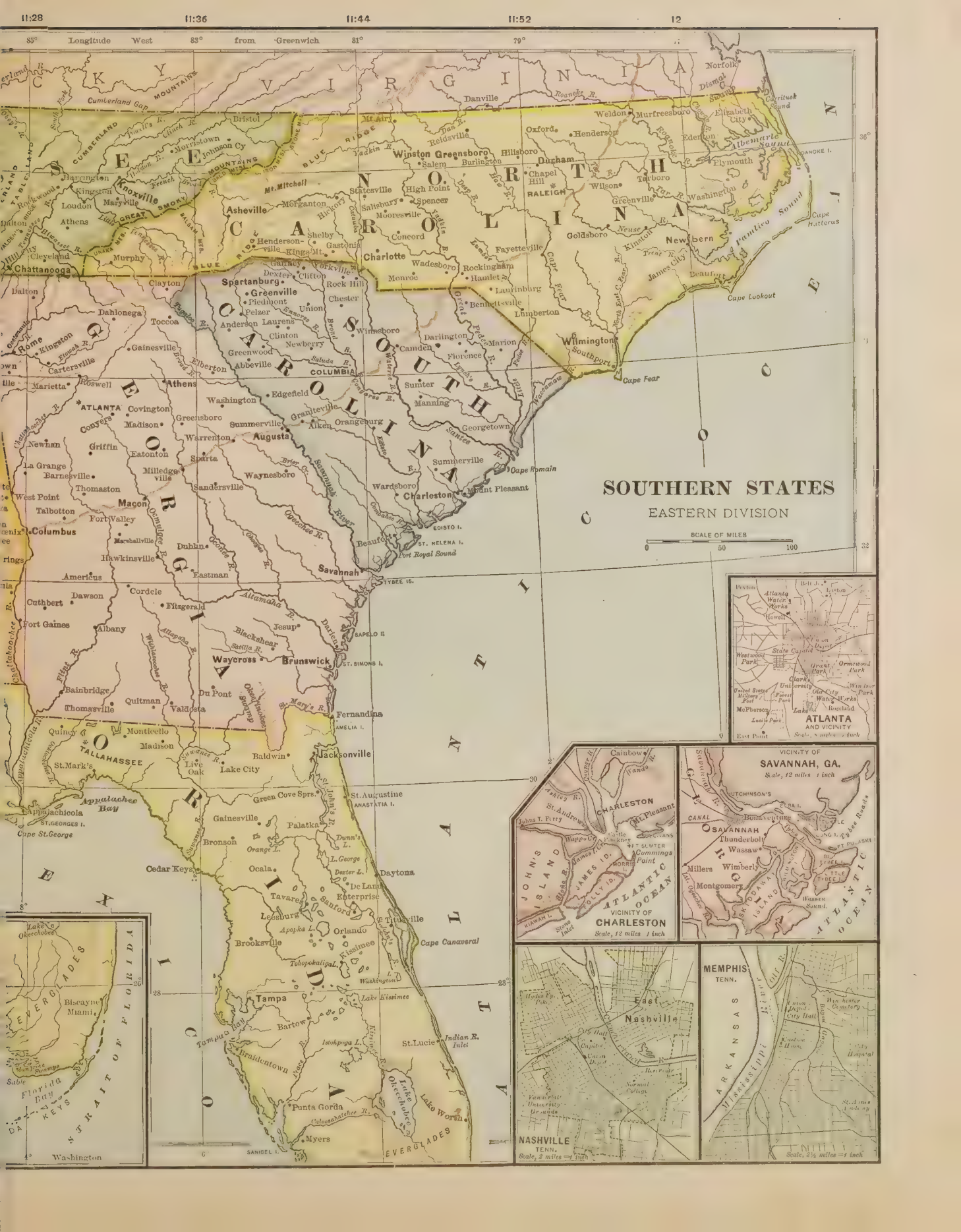


bama. Of the Tombigbee. What large river flows through the northern part of Alabama? What river flows between Alabama and Georgia? Describe Mobile. The capital. Birmingham.

Mississippi.—What rivers form the western boundary of Mississippi? Name the principal rivers of this State. What two rivers enter the Mississippi near Vicksburg? Where is Mississippi Sound? What is the capital? On what river is it? Describe Vicksburg. Natchez. Meridian.

Routes of Travel.—How would you go by steamboat from Wilmington, North Carolina, to Macon? From Jacksonville to Selma? Florence to Memphis? Jackson to Mobile? New Orleans to Nashville?





to the cultivation of grain, tobacco, fruits, and vegetables. That of the southern part is semi-tropical. This section is well watered and suited to the growth of sugar cane, cotton, rice, and tropical fruits.

The copious supply of moisture enjoyed by this portion of the country contributes to make it the very first among the **cotton-growing regions** of the world. In a climate that is less humid, as, for example, that of India, cotton will grow and yield abundantly, but the fiber is short, and this renders it far more difficult to spin into

yarn and weave into cloth. The winds from the Gulf bring the frequent summer rains. Hence we find in the southern parts of Alabama, Mississippi, and Louisiana a greater annual



Photographs of a cotton mill in Columbia, S. C., showing four steps in the manufacture of cotton goods. 1. The carding machine straightens the fiber and rolls the cotton, which is gathered into cans.

rainfall than that of any other portion of the country east of the Rocky Mountains.

The majority of people in the Southern States are engaged in agriculture. Manufacturing, mining, and commerce are the other important industries.

Influence of Inventions.—The industrial pursuits of the Southern States were very largely determined by the invention of the cotton-gin, the spinning-jenny, and the power-loom.

One hundred years ago the cultivation of cotton in the Southern States was confined to a small patch on each farm, capable of producing a few pounds only. The seeds were picked from the cotton by hand, and the cotton spun and woven by the women of the family into "home-spun."

The cotton-gin removes the seed from the cotton. In a few minutes one can do as much work as a whole family could do in a week. A spinning-jenny and a power-loom can spin and weave as much cotton in a day as a woman could in a year. These inventions made cotton planting the great industry of the Southern States. The an-



Shipping cotton by railroad.—Freight cars loaded with cotton at the station at Houston, Texas, during the busy season.

nual crop, now ten to twelve million bales, is about three-fourths of the world's supply.

From the seed an oil is pressed as fine as olive oil. The cake which is left is ground and sold for cattle feed and fertilizers. **Cotton-seed-oil mills** are numerous.

Within the past few years the attention of the people of the Southern States has been largely directed to the **manufacture** of cotton. Extensive mills have been erected, and the production of cotton goods has steadily increased. The number of mills has more than doubled in ten years.

The **advantages** which attract the cotton-spinner to this region are these: (1) the raw material is produced at his very doors, and he is therefore in a large measure saved the expense of transportation; and (2) numerous streams descending to the sea from the mountains furnish unlimited water-power.

Commerce.—The commerce of these States consists chiefly in the sale of cotton, sugar, rice, lumber, coal, iron, naval stores, cotton cloth, and cotton-seed oil. They buy fine textiles, clothing, boots, shoes, hats, furniture, agricultural implements, silverware, and other manufactured articles, and often flour, corn, and meat from the other States. Numerous railways and navigable rivers afford ample means of transportation. The leading imports are raw sugar, coffee, and tea; bananas, pineapples,



3. The spools are placed on this machine. Here the cords from six spools are twisted together to make one thread.

and other tropical fruits from Mexico, Central and South America; also manufactured goods.

Review Topics.—Name the ten Southern States. Compare in size with the New England and Middle Atlantic States. In population. Coast line. Harbors. How does the surface resemble that of the Middle Atlantic? How do the mountains divide the States east of the Mississippi? Into what do the rivers flow? What elevations west of the Mississippi? Describe the forest belts. Swampy belt. Live-oak forests. Pine belt. How far are the rivers navigable? Describe the Mississippi and its southern tributaries. What minerals in the mountains? In Alabama and Tennessee? In Georgia and North Carolina? In Louisiana? Arkansas? Other Southern States? Climate? What makes the Southern States a cotton-growing region? Describe the rainfall in some of the Gulf States. The occupations. What inventions have affected the industries? What effect did they produce? Cotton manufacture in the Southern States. Commerce. Principal exports. Chief imports.



4. On the cylinders shown here are wound certain threads called the warp, while little spools of thread are placed in the shuttles which move backward and forward, filling the warps and making cloth.

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XXXI. NORTH CAROLINA AND TENNESSEE.

1. North Carolina and Tennessee.—North Carolina, the "Old North State," and Tennessee are mainly between the same parallels of latitude. Except in the Coastal Plain of North Carolina, the industries of the two States are similar.

Both States are admirably adapted to the growth of grain, tobacco, flax, and hemp. The grape, fig, and peach, with other orchard fruits, are raised, as well as melons, peanuts, and sweet

potatoes. Cotton is extensively cultivated except in the mountain sections.

The territory constituting Tennessee once belonged to North Carolina, and was settled chiefly by emigrants from that State. **Daniel Boone**, the celebrated hunter, who led the way for settlers, both into Kentucky and Tennessee, was a North Carolinian.



View on the Asheville plateau, showing the mountains which tower above it and the French Broad river that cuts its way through the mountains into Tennessee.

2. North Carolina.—The highest mountains east of the Mississippi are in this State. The highest of these is Mt. Mitchell. There are 43 peaks 6,000 feet and upwards in height, and 82 between 5,000 and 6,000.

The plateau here is over 2,000 feet above the sea level, and its dry air and beautiful scenery have made it famous as a health resort.



Selling tobacco at auction in Winston, N. C. This scene is called a tobacco break.

North Carolina is an important manufacturing State. It ranks second in the United States in the manufacture of cotton goods. The Piedmont section is dotted with cotton mills. The tobacco grown there is of the finest grade. The State stands second in the Union in the value of its tobacco crop and third in manufactured tobacco.

The eastern section abounds in cypress swamps and forests of long-leaf or pitch pine. The cutting of lumber, cypress staves and shingles are leading industries. The gathering of naval stores is also a very important industry.

In the Coastal Plain rice is grown, and early fruits and vegetables are cultivated for Northern markets. The sounds and rivers of this region abound in fish. The fishing industries are of great value. In Albemarle Sound as many as 300,000 herring have been caught at a single haul.

In the Piedmont and mountain regions, gold, iron of the finest quality, coal, marble, and precious stones are found. The mica and corundum deposits are the richest known on this continent.

3. Cities.—**Raleigh**, the capital, is a manufacturing center. **Charlotte**, the largest city, manufactures clothing, cotton goods, cottonseed oil, lumber, and machinery, and is a railroad and educational center.

Wilmington, the chief port, manufactures lumber, cottonseed oil, and flour, and exports naval stores, lumber, and cotton. **Asheville** is a famous

health resort in summer and in winter. **Greensboro** has machine shops, lumber mills, and a big tobacco trade. **Winston** and **Durham** are famous for the manufacture of tobacco. **Newbern** is noted for its trade in early vegetables.

4. Tennessee consists of three sections: East, Middle, and West Tennessee. **East Tennessee** lies east of the Cumberland Mountains. It is mountainous, and rich in coal, iron, and copper. Its marbles are of great beauty and variety. Its valleys are famous for their rich soil and beautiful scenery. The great valley of eastern Tennessee is really a continuation of the valley of Virginia.

Middle Tennessee is a rolling country, extending from the Cumberland Mountains westward to the Tennessee river. It excels in the production of wheat, corn, and tobacco. Here, in the blue-grass region, are celebrated stock farms.

West Tennessee is comparatively level. It is the great cotton-growing section of the State.

5. Cities.—**Nashville**, the capital, on the Cumberland river, is the second city in the State. It manufactures flour, fertilizers, lumber, and tobacco, and has a considerable commerce. The Peabody Normal College, Vanderbilt University, and other important educational institutions are here.

Memphis, on the Mississippi river, the first city in the State, is the greatest inland cotton market, and a large producer of hardwood lumber and cottonseed products. Much flour is made here. A fine cantilever railway bridge spans the river.

Chattanooga, on the Tennessee river, is a very important railroad center. It manufactures flour, lumber, malt liquors, and furniture, and has large iron furnaces and foundries.

Above Florence, Alabama, a canal 10 miles long carries boats around the famous mussel shoals of the Tennessee river.

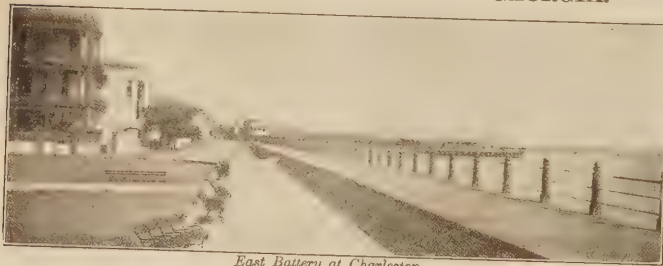
Knoxville is the commercial center of east Tennessee, at the head of navigation of the Tennessee river. **Jackson** manufactures lumber. **Clarksville** is engaged in the tobacco trade.



The Mississippi river front at Memphis, Tenn., looking up the river. On the left are small steamboats. In the center is a wharf-boat which takes the place of a wharf, and beyond are larger side-wheeled steamers. It is impossible to build wharves here because of the rising and falling of the river. Merchandise is received on the wharf-boat or piled on the landing, as you can see in the picture. As the Mississippi rises the boats land higher and higher up the bank, until finally they reach the telegraph poles.

Review Topics.—Compare North Carolina and Tennessee in latitude and products. Who first settled Tennessee? Describe the mountains. The chief industries. Where is rice grown? Where is the mining region? Describe Albemarle Sound. The capital. The chief cities. Divisions of Tennessee. Chief cities.

XXXII. SOUTH CAROLINA AND GEORGIA.



East Battery at Charleston.

1. South Carolina and Georgia.—South Carolina and Georgia resemble each other in physical features. They both front on the Atlantic, and slope from the mountains to the ocean.

Their shores are fringed with the Sea Islands, which are celebrated for a kind of cotton called the sea island cotton. It is the finest in the world.

It has a long silky fiber, and is chiefly used for the manufacture of laces and other fine fabrics.

These States are alike in climate and industries.

2. South Carolina.

—In the manufacture of cotton goods, South Carolina ranks second among the Southern States, and third in the United States. Rice and sea island cotton are grown along the coast, and cotton and corn in all parts of the State. Truck farms are numerous, and tea culture is conducted with some success.



View of naval stores on the wharf at Savannah, Ga., awaiting shipment. Savannah ships more naval stores than any other port in the world.

3. Cities.—**Charleston** is the principal city and chief seaport of the State. It is an important rice market, and ships large quantities of cotton, vegetables, and naval stores. Near the city are vast deposits of phosphate rock which is used in the manufacture of fertilizers.

Columbia, the capital, on the Congaree river at its falls, is an important manufacturing city. It is noted for its beauty, and is the seat of the University of South Carolina.

Greenville and **Spartanburg** are important cotton manufacturing cities.

The Winthrop Female Normal and Industrial College is at **Rock Hill**; the Clemson Agricultural College is at **Fort Hill**, the old home of John C. Calhoun; and the South Carolina Military Academy is at Charleston.

4. Georgia.—Georgia is one of the leading Southern States in manufacturing and commerce, and in the production of cotton, lumber, naval stores, melons, fruits, and vegetables.

North Georgia produces the finest of wheat and oats. Rice flourishes in the lowlands along the coast; cotton, the leading staple, in the central and southwestern parts of the State; corn grows everywhere. The great pine forests yield valuable timber and naval stores.

The gold mines of this State were considered very rich before gold was found in California, and are still profitably worked.

Georgia marble is famous. Coal, iron, limestone, and manganese are mined in the northern part of the State.

5. Cities.—**Atlanta**, the capital and largest city, is at the point where railroads must pass in coming around the mountain barrier. This makes it a great railroad and trade center. It ranks first in the State in manufactures. A school of technology is located here.

Savannah is the chief seaport, and an important commercial center. It exports cotton, rice, naval stores, and lumber.

Augusta, on the Savannah, and **Columbus**, on the Chattahoochee, have ample water power and extensive cotton mills. **Macon** has three colleges, cotton mills, and a large wholesale trade.

Rome has an important river trade. **Brunswick** ships cotton, lumber, and naval stores. The State University and the State Normal School are at **Athens**, and the Georgia Normal and Industrial College is at **Milledgeville**.

Review Topics.—Compare South Carolina with Georgia. Sea island cotton. How used? Manufacture of cotton goods. Agricultural products. Describe Columbia. Charleston. What minerals has the State? In what is Georgia prominent? What part produces wheat and oats? Rice? Cotton? What are the forest products? The minerals? Describe Savannah. Atlanta. Augusta. Columbus. Macon. Rome. Brunswick. Where is the State University?

XXXIII. FLORIDA, ALABAMA, AND MISSISSIPPI.

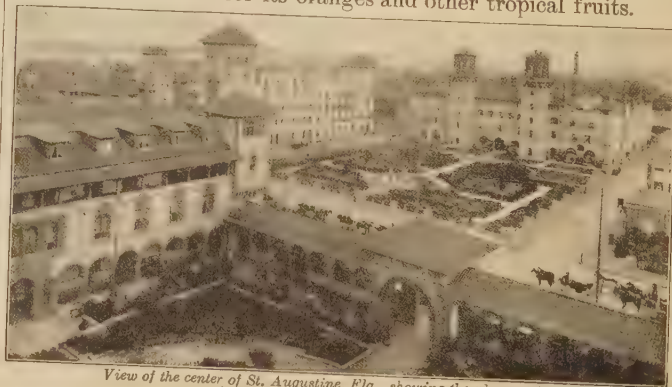
1. Florida.—Florida has no mountains. It is dotted with beautiful lakes and springs.

The **Everglades** in South Florida may be described as a great shallow lake with long grass growing from the bottom. The surface is studded with islands, upon which are dense jungles of tropical trees and plants.

Florida fronts both on the Gulf of Mexico and on the Atlantic. It has so mild and delightful a winter climate that thousands of visitors spend the winter here each year. Its tourists' hotels are among the finest in the world.

The soil is adapted to the cultivation of cotton, sugar, and rice.

Florida is famous for its oranges and other tropical fruits.



View of the center of St. Augustine, Fla., showing the plaza and the immense hotels for winter visitors.

An important industry is the cultivation of early fruits and vegetables for Northern markets. In the southern parts of the State Sisal hemp, coconuts, pineapples, and guavas are grown. The live oak abounds here, and the sponge fisheries are valuable. The phosphate deposits are the richest and largest yet discovered. Florida is of limestone formation. The southern part is bordered by numerous coral-formed islands called **Keys**.

2. Cities.—**Jacksonville**, the largest city, ships pine lumber, oranges, and vegetables, by water and by rail, to Northern cities.

Tampa, the second city, ranks next to New York in the import of tobacco; it manufactures cigars and has steamship lines to Key West, Havana, and other ports. **Pensacola**, the chief city in foreign commerce, has a fine harbor, and ships pine lumber, naval stores, and cotton. **Key West**, on one of the Keys, manufactures the famous Key West cigars from tobacco grown in Cuba. Sponge fishing is an important industry.



Tallahassee is the capital. **St. Augustine**, founded by the Spanish in 1565, is the oldest town in the United States.

3. Alabama and Mississippi.—With the exception of the mountain region of north Alabama, these two States belong to the Gulf Plain, which is sometimes broken by hills made by the action of water. Corn and oats are raised for home use. Cotton is the great agricultural product. In the southern sections early vegetables and fruits are grown for Northern markets.

In the southern part of both States are extensive forests of long-leaf pine from which lumber, naval stores, and charcoal are manufactured. Both States have cotton factories and many cotton-seed-oil mills.

4. Alabama.—Alabama ranks first in the South and third in the Union in the production of iron, and sixth in the output of coal. Rich deposits of iron ore, coal, and lime lie near together, and supply the furnaces, rolling mills, and coke ovens that dot the mineral district. The Alabama and Tombigbee rivers furnish a waterway to the Gulf for the coal, iron, and cotton of the State.

5. Cities.—**Mobile**, the only seaport, exports cotton, lumber, naval stores, and iron. It imports bananas and other tropical fruits.

Birmingham, the largest city of the State, is the center of the coal and iron region, and has coke ovens, furnaces, and rolling mills. It manufactures steel rails, engines, boilers, machinery, cotton gins, and cotton. Many railroads center there.

Montgomery, the capital, is a railroad center and river port. It manufactures fertilizers, cotton, cotton-seed oil, and lumber, and has a large trade.

Anniston has iron and steel works, machine shops, and cotton factories. **Selma** is an important point for the shipment of cotton. **Bessemer** is an iron and steel manufacturing center. **Gadsden** has various manufactories. The University of Alabama is located at **Tuscaloosa**.



6. Mississippi.—Mississippi lacks mineral wealth, but is rich in cotton and in forests of hard wood in the Delta, and of yellow pine in the southern hills.

The most important manufactures are lumber, cotton-seed oil and meal, naval stores, and cotton goods.

7. The Mississippi-Yazoo Delta.—There is no richer land in the world than that of the Delta. It is a part of the flood-plain of the Mississippi, and is protected from overflow by embankments called levees, which are built along that river from the bluffs above Vicksburg to the bluffs near the Tennessee line. A bluff just east of the Yazoo river forms the eastern rim of the Delta. The Delta embraces about one-seventh of the State. The cotton grown here ranks next to the sea island cotton in value.

8. Cities.—**Meridian**, the largest city, is an important railroad and commercial center. Its leading manufactures are cotton and lumber products, and fertilizers. **Jackson**, the capital, is a great railroad and business center. It is an important cotton market and has large cotton-seed-oil mills. **Vicksburg**, the chief river port, and **Natchez** are both situated on the bluffs of the Mississippi. They are important cotton markets and manufacture lumber and cotton-seed oil.

Hattiesburg is an agricultural and lumbering center. **Greenville**, **Columbus**, and **Laurel** are cotton-manufacturing centers. **Biloxi** has extensive shrimp fisheries and ranks next to Baltimore in the oyster product. **Yazoo City** has large cotton interests. The University of Mississippi is at **Oxford**, the Agricultural and Mechanical College at **Starkville**, and the Industrial Institute and College for Girls at **Columbus**.



Canton, Miss., showing the cars loaded with coal which is used to run the machinery of the ice factory nearby. The ice is being put into the cars to preserve the fruit and vegetables on their way to Northern cities to be sold.

Review Topics.—Describe the surface of Florida. The Everglades. The climate. The soil. What ship-timber abounds? Phosphate deposits? What are the Keys? Describe Jacksonville. Tampa. Pensacola. Key West. Tallahassee. St. Augustine. Describe the surface of Alabama and Mississippi. Climate. Staple production. The minerals of Alabama. The forests. Its industries. Its chief rivers. Mobile. Montgomery. Birmingham. Anniston. Huntsville. Selma and Tuscaloosa. The State University. Mississippi. The forests. The Mississippi-Yazoo Delta. Vicksburg and Natchez. Meridian and other places of trade. The State educational institutions.

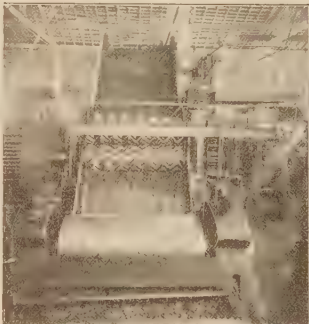
XXXIV. LOUISIANA AND ARKANSAS.

1. Louisiana.—Louisiana, so called in honor of Louis XIV. of France, was settled by French and Spanish colonists. The descendants of the former are called French Creoles.

Louisiana was purchased from France in 1803, and has since been a free outlet to the sea through the Mississippi.

2. The depression of the land is one of the marked physical features of this State. From the mouth of the Red river to the Gulf the level of the Mississippi river and its outlets—called bayous (*bə'ooz*)—is higher than that of the adjacent country.

The drainage, therefore, is *from* and not *toward* the watercourses. The people speak of going *up* to the river instead of going *down* to it.



Making sugar in Louisiana. The cane comes down the slide and the juice is crushed out by rollers.



The juice is boiled to a thick syrup in each of these three vessels, called the "triple effect."



Centrifugal mills. They revolve rapidly, throwing off molasses through a fine wire netting, leaving dry grains of sugar.

Orleans ranks

States in its commerce and first in the manufacture of the cane-sugar raised in the United States, more than any other State, and much cotton. The chief manufactures of Louisiana are sugar, lumber, rice, cottonseed oil, and jute bags.

4. Cities.—New Orleans ranks third in the United States in its commerce, and first in the manufacture of the cane-sugar raised in the United States, more than any other State, and much cotton.

It is one of the greatest cotton markets in the world, and one of the greatest for sugar and rice. It exports chiefly cotton and grain. It imports raw sugar, coffee, tropical fruits, and other merchandise. It has sugar refineries, rice mills, foundries, and other factories.

The levee here is very wide and upon it may be seen bales of cotton, barrels of sugar and rice, sacks of coffee, and boxes of other merchandise ready for shipment. On one side of the levee are wharves where steamships, sailing vessels, and steamboats lie, one after another, for more than five miles; here also are grain elevators and shipyards. Tulane University and other higher institutions of learning are located in this city.

Shreveport is an important railroad and trading center. It is the chief distributing point of north Louisiana.

Baton Rouge (*ba'tun roozh*), the capital, is an important city. The State University is located here. **Alexandria** and **Lake Charles** manufacture cottonseed oil and lumber. **New Iberia** has mills for hulling and cleaning rice.

Oklahoma.—What is the southern boundary? What rivers cross this State? Name and locate the principal towns. Oklahoma. Perry. Ardmore. Muskogee. McAlester. What is the capital?

Texas.—What bounds Texas on the north? On the southwest? What portion is mountainous? Where are the Apache Mountains? The Llano Estacado? What rivers form part of the boundaries? What river flows into Galveston Bay? Describe the Brazos. The Colorado. What river enters Sabine Lake? San Antonio Bay? Corpus Christi Bay? What tributary of the Rio Grande crosses the western part of the State? Name the bays on the coast. The islands. Describe the capital. Galveston. Houston. Dallas. San Antonio. Fort Worth. Waco. Sherman. Denison. Marshall. El Paso.



View of a levee in New Orleans. Notice the steamboat on the Mississippi river, the steamships and sailing vessels lying next to the levee. On the levee are cotton, staves, and other merchandise which are to be loaded on the ships. Notice the freight cars on the left.

MAP STUDIES.—In which of these States are lakes most numerous? Which has no seacoast? Which has the longest coast line?

Arkansas.—What portion is mountainous? Boundaries. What large river crosses this State? Describe the course of the White River. Name the capital. Describe Helena. Hot Springs. Pine Bluff. Fort Smith.

Louisiana.—What rivers separate Louisiana from Mississippi? What river flows across Louisiana? Into what river does the Washita flow? What river and lake between Louisiana and Texas? What river and bayou enter Grand Lake? Where is Lake Pontchartrain? Grand Lake? Name the bays on the coast. How many mouths has the Mississippi? Describe New Orleans. Shreveport. Baton Rouge.

SOLAR TIME—When it is Noon on the Meridian of Washington,

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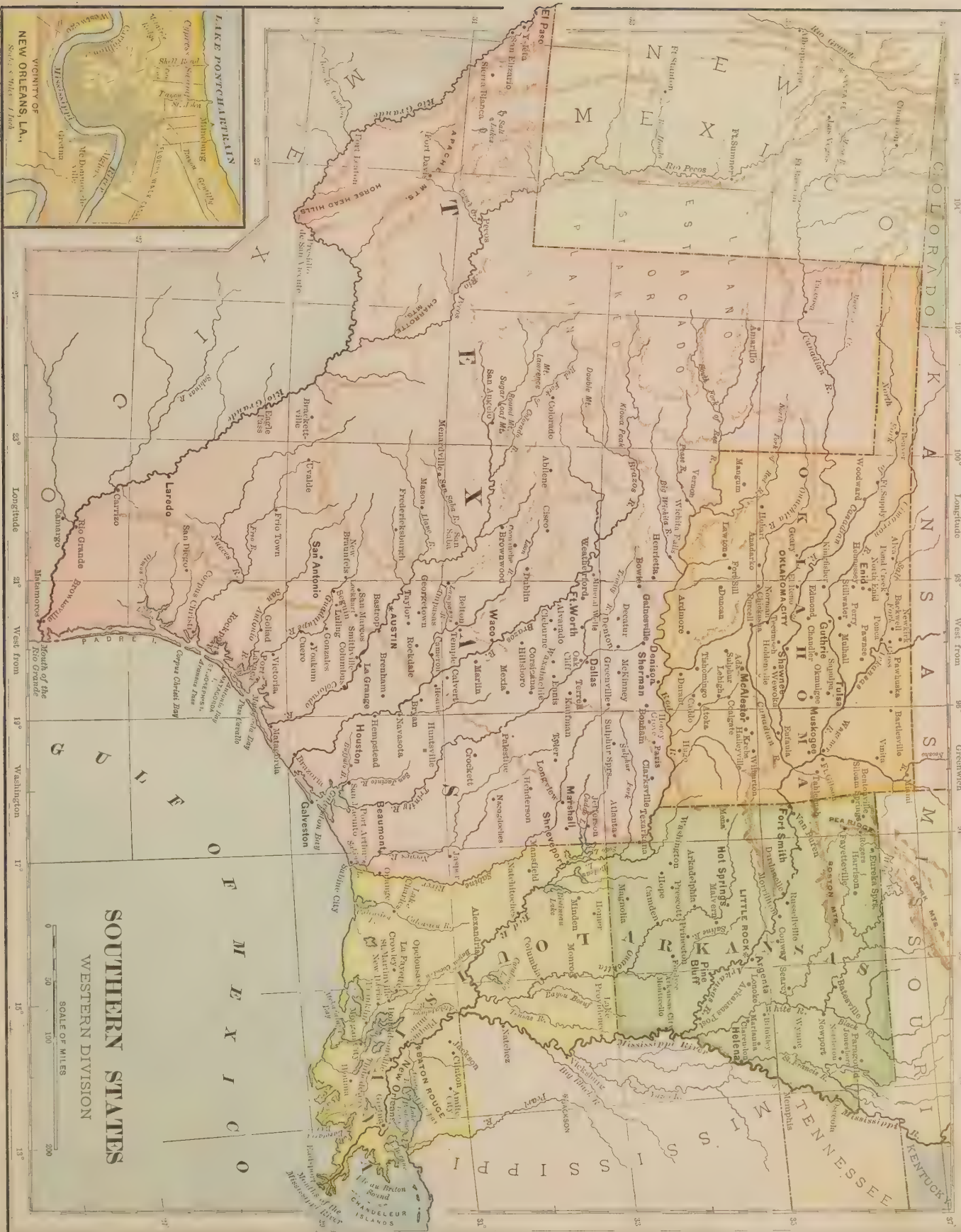
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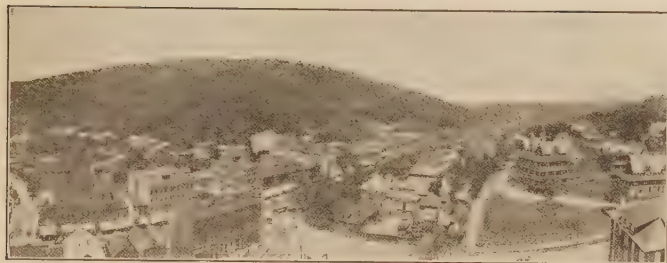
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SOUTHERN STATES

WESTERN DIVISION

SCALE OF MILES
0 50 100 200



View of the city of Hot Springs, Arkansas.

5. Arkansas.—Arkansas is rich in its productive soil and in its forests and minerals. Agriculture is the principal industry, and the chief products are cotton and corn.

Eastern Arkansas consists of lowlands which are a part of the Mississippi flood-plain. These lands are protected from overflow by levees like those in Louisiana.

Western Arkansas is rugged, being crossed by the ridges of the Ozark Mountains. It is a fine grazing country and is largely devoted to farming and stock raising. **Mining** is also a growing industry. Coal, iron, lead, zinc, and other minerals abound, and there are extensive quarries of sandstone and limestone. Arkansas leads in the production of **bauxite**, a fine clay from which the metal aluminium is obtained. The **oilstone** and **whetstone** quarries are the best in the world.

The **hardwood**

of the State consist of the best bodies of hickory, and to be found in the country. The value of the hard wood lumber cut from these forests exceeds that of any other State. In the western part of the State are numerous **hot springs**, celebrated for their medicinal qualities and much resorted to by invalids.

6. Cities.—**Little Rock**, the capital and chief city, is a center of trade, and manufactures cottonseed products and lumber.

Pine Bluff, an important shipping point on the edge of the Flood Plain, manufactures lumber and cottonseed oil. **Fort Smith** is in the center of the coal regions at the head of navigation on the Arkansas River. **Helena** is an important shipping point for cotton on the Mississippi.

Hot Springs is a progressive, growing city. Here are the famous mineral springs which make it a winter and summer resort. **Eureka Springs** is also a health resort.

Review Topics.—Louisiana; how acquired and settled? What is a crevasse? In what does Louisiana rank first? Where do we get our upholstery moss? Mineral resources. Manufactures. New Orleans. Shreveport. Baton Rouge. Other cities. Name the resources of Arkansas. What is its principal industry? Its chief products? Describe eastern Arkansas. Western Arkansas. The mineral resources. The hot springs. The chief center of trade. Important towns.

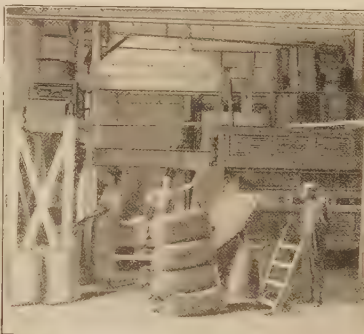
XXXV. TEXAS AND OKLAHOMA.

1. Texas.—Texas is the largest State in the Union. It is about thirty-two times the size of Massachusetts. Its industries and transportation facilities have been rapidly developed by the unbounded energy of its people. Texas now has more miles of railway than any other State.

It was once a part of Mexico, but won its independence by the victory at San Jacinto in 1836. In 1845 it was annexed to the United States.

Texas ranks first in the Union in stock raising, first in the production of cotton, and first in the manufacture of cottonseed products. About one-fourth of our entire cotton crop is grown there. It ranks high in wool growing and also in its yield of petroleum.

Southern Texas is coast prairie. **Eastern Texas** is a timber belt. Next **Prairie**, the



After the oil is pressed out, hard cakes are left about an inch thick. These are ground into cottonseed meal, which is packed into sacks and sold for fertilizer or for food for stock.

comes the **Black famous "black waxy" land**, and west of this is the **Grand Prairie**, a great grazing region. Beyond are the **Great Plains** and ranges of the **Rocky Mountains**, where little rain falls.

Its agricultural products include cotton, corn, oats, other grains, and fruits; rice and sugar on the coast prairies, and wheat in the north.

Meat packing, petroleum refining, flour milling, rice cleaning, and making lumber, cottonseed oil, and machinery are important industries.

Coal, quicksilver, salt, gypsum, granite, sandstone, limestone, marble, iron, and other useful minerals are found.

2. Cities.—**San Antonio**, the oldest and largest city in the State, is the most important business center of western Texas.

Dallas is a shipping point for agricultural machinery and supplies, and leads the cities of the South in the manufacture of saddlery and harness.

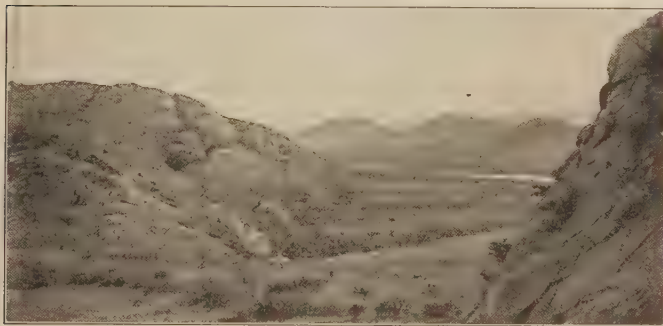
Houston is a leading railroad and manufacturing center, and the largest cotton market in the State.



View of the harbor at Galveston, showing the wharves where the railroads bring cotton and produce for export. In the distance can be seen a breakwater built by the Government to protect the harbor.

Galveston, the chief port, has one of the best harbors on the Gulf. It ranks second in the Union in value of exports. These are chiefly cotton, hides, wool, and wheat. **Fort Worth** is an important railroad center and has meat-packing and rice-cleaning establishments. **Austin**, the capital, is a beautiful city. **Waco**, in the cotton belt, manufactures cottonseed oil.

El Paso, **Laredo**, and **Brownsville**, on the Rio Grande, have an important and growing trade with Mexico. **Denison** is a shipping point; **Sherman** has large flour mills; and **Marshall**, railroad shops. **Beaumont** is the center of famous oil-fields, and has rice and lumber mills. **Paris** is an important shipping point for grain and cotton. **Temple** is noted for cottonseed oil. **Palestine**, **Tyler**, and **Cleburne** have large railroad shops, cottonseed oil mills, and flour mills. **San Angelo** is a health resort.



In the Ouachita Valley, Oklahoma.

3. Oklahoma.—In 1890 Oklahoma was separated from the Indian Territory and organized as a territory. As soon as the public lands were thrown open for settlement thousands of people flocked in. Houses were built and cities were established in a few days' time. In 1907 the territories were again united to form the new State of Oklahoma. This State has a mild climate and raises large crops of corn, cotton, and potatoes. Wheat, oats, and other grains are also grown. In the western part of the State grazing is the leading industry, this State ranking high in the number of cattle on the ranches.

Much coal is mined in the southeastern part of the State, and the petroleum fields in the northeast yield abundantly. Fine granite is quarried and there are valuable deposits of gypsum.

The Indians that formerly lived upon reservations are now citizens of the United States and of Oklahoma.

The tribes include the Cherokees, Chickasaws, Choctaws, Creeks, and Seminoles. They are civilized; they till the soil, raise cattle, and have schools, churches, and newspapers.

4. Cities.—**Oklahoma City** is the capital and largest city. It is an important railroad center and has manufactures of flour, lumber, machinery, and cottonseed oil. The Epworth University is located here. **Muskogee**, in the coal and oil region, is a leading educational center.

Tulsa has productive oil and gas wells, and coal mines, beside important manufactures of machinery, flour, and lumber. **McAlester** is an important coal-mining center. In **Enid**, **Shawnee**, **Guthrie**, and **Chickasha**, the milling of flour and the manufacture of cottonseed oil are important industries.

Review Topics.—How does Texas rank in size? How was it acquired by the United States? For what is it famed? What are some of the products? In what does it lead? What of its wool? Its cotton and wheat lands? Its mineral

XXXVI. CENTRAL STATES.



In the famous blue-grass region, Kentucky.

STATE.	Area in Sq. Miles	Population, 1910.	Capitals.	Chief Cities and their Population.
Kentucky.....	40,598	2,289,905	Frankfort....	Louisville... 223,928
Ohio.....	41,040	4,767,121	Columbus....	Cleveland... 560,663
Indiana.....	36,354	2,700,876	Indianapolis..	Indianapolis. 233,650
Illinois.....	56,665	5,638,591	Springfield...	Chicago..... 2,185,283
Michigan.....	57,980	2,810,173	Lansing.....	Detroit..... 465,766
Wisconsin.....	56,066	2,333,860	Madison.....	Milwaukee... 373,857
Missouri.....	69,420	3,293,335	Jefferson City.	St. Louis.... 687,029
Iowa.....	56,147	2,224,771	Des Moines...	Des Moines.. 86,368
Minnesota.....	84,682	2,075,708	St. Paul.....	Minneapolis. 301,408
Kansas.....	82,158	1,690,949	Topeka.....	Kansas City. 82,331
Nebraska.....	77,520	1,192,214	Lincoln.....	Omaha..... 124,006
North Dakota...	70,834	577,056	Bismarck.....	Fargo..... 14,331
South Dakota....	77,615	583,888	Pierre.....	Sioux Falls.. 14,094

resources? Describe Austin. Dallas. San Antonio. Galveston. Houston. Fort Worth. Denison. Waco. Brownsville. Laredo. El Paso. Oklahoma City.

1. Position and Surface.—The Central States are all inland, and occupy nearly the whole of what is called the **Upper Mississippi Valley**.

The **surface** is generally level, or rolling, with a gentle inclination toward the Mississippi, which occupies the line of lowest level from north to south.

The only important elevations are the Black Hills of South Dakota, the hills of Michigan and Minnesota, the Ozark



In the fertile farming section of Illinois.

Mountains, Pilot Knob, and Iron Mountains in Missouri and southern Missouri, and the low mountains in southeastern Kentucky.

2. Prairies.—The most striking feature of these States is their vast prairies. Long ago these were treeless, covered with grass, gay with flowers, and alive with herds of buffaloes. Their soil is usually free from stones, and exceedingly fertile.

Indiana, Illinois, Wisconsin, Iowa, Kansas, Nebraska, Minnesota, and the Dakotas are wholly or largely prairie regions.



A harvester at work.

3. Rivers.—The Central States are drained by the Mississippi and its tributaries. From all of these States, excepting Michigan, streams flow into the Mississippi, which carries the water into the Gulf of Mexico.

Situated between the two great watersheds of the country, and draining an area of such vast extent, the **Mississippi** receives immense volumes of water. When its eastern tributaries are swollen by heavy rains at the same time that the tributaries from the west, owing to the melting of the snows upon the Rocky Mountains, are discharging unusually large quantities of water, the Mississippi receives two floods at once. It then sometimes overflows its banks and attains the proportions of a sea. In the spring flood of 1867, the Mississippi was estimated to be, at Memphis, 40 miles broad.

The eastern tributaries of the great river, as compared with the western, are shorter, more rapid, and not navigable to so great a distance.

This is because the Mississippi does not occupy the middle of the valley; it is far to the east of the middle, being, below its junction with the **Ohio**, not very far from the most western range of the Appalachians.

4. Climate.—These States have an inland, or continental, climate. In the northern section the winters are long and severe, the summers are short and hot; in the southern the winters are milder, and the summers longer.

5. Minerals.—The Central States are rich in minerals. The coal-fields of Ohio, Indiana, Illinois, Iowa, Missouri, and Kentucky are among the largest in the world. They embrace an area of many thousand square miles.

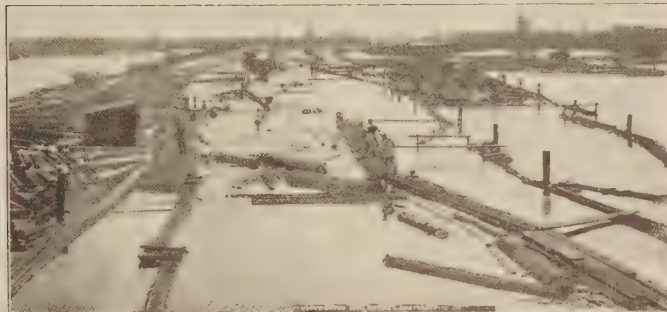
Masses of native copper, tons

in weight, have been quarried out of the mines in the Lake Superior copper region.

Iron is abundant in the Lake Superior region, both in Minnesota, Michigan, and Wisconsin, and also in Ohio, Kentucky, and Missouri. **Lead** and **zinc** abound in Missouri, Kansas, and Wisconsin; **gold** and **silver** in South Dakota.

Michigan produces more salt than any other State except New York. Ohio and Indiana furnish much petroleum.

6. The Central States are the great grain, lumber, and meat-producing region of the country. Potatoes, hay, tobacco, sugar-



Logging on the Menominee river at Menominee, Michigan.

beets, flax, hemp, and fruits are also important crops. The wool clip in Ohio and Michigan is very great.

The **manufactures** of these States are enormously valuable and include farming implements, railroad cars, carriages, automobiles, packed meat, lumber, and tobacco, in all of which this section leads.

The **fisheries** of the Great Lakes are a profitable source of industry in Michigan, Minnesota, and Wisconsin. Whitefish, lake herring, trout, and sturgeon are taken in enormous quantities.

The **commerce** of the Central States consists chiefly in the sale of flour, beef, pork, lard, machinery, copper, lead, iron, lumber, wheat, corn, and oats.

Many of these products are sold in the manufacturing cities of the Eastern States and to foreign countries, from which these States buy textile goods, boots and shoes, hardware, and various manufactures.



Unloading iron ore from lake steamers at Cleveland. One end of the long steel crane is lowered to the deck; the ore is hoisted and put in cars, which run to the other end of the crane and dump it on the docks.

MAP STUDIES.—In which of these States are mountains found? Which border on Lake Michigan? On Lake Erie? On the Ohio? On the Mississippi?

Kentucky.—What mountains separate Kentucky from Virginia? What river north? Northeast? West? Name the principal tributaries of the Ohio flowing through Kentucky. What river enters the Ohio near Newport? What two rivers from Tennessee cross the western part of the State? Where does the Cumberland river rise? Locate Louisville. Covington. Newport. Lexington. Paducah. Henderson. Bowling Green. Frankfort. Winchester. Paris. Ashland. Maysville. Mammoth Cave.

Ohio.—What river separates Ohio from West Virginia? From Kentucky? What lake north? What rivers flow into the Ohio? In what direction does the Maumee river flow? In what part of the State is the capital? Locate Cincinnati. Cleveland. Columbus. Toledo. Dayton. Youngstown. Springfield. Akron. Zanesville. Sandusky. Hamilton. Newark. Mansfield. Portsmouth.

Indiana.—What great lake north? What river separates Indiana from Kentucky? What river forms part of the boundary between Indiana and Illinois? What are the branches of the White river? In what directions does the Wabash flow? What is the capital of the State, and where? Where is Evansville? Fort Wayne? Terre Haute? South Bend? New Albany? Richmond? Lafayette? Logansport? Elkhart? Muncie? Anderson? Vincennes? Bloomington?

Illinois.—What river west? What lake and river east? What river south? Into what does the Illinois flow? Into what does Rock river flow? Where is the Kaskaskia? The Sangamon? The Little Wabash? Where is Lake Peoria? Name the capital. What great city on Lake Michigan? Where is Peoria? Quincy? Joliet? Rockford? Bloomington? Aurora? Decatur? Rock Island? Alton? Cairo?

Routes of Travel.—On what body of water would you travel in going by steamboat from Cincinnati to Cairo? Cairo to Quincy? Cleveland to Fort Wayne? Cincinnati to Wheeling, West Va.? Louisville to Nashville? Terre Haute to New Albany?

The **Mississippi** and its tributaries give to the people of the Central States a natural outlet to the Gulf for their produce. The Great Lakes are inland seas, which furnish, in connection with the St. Lawrence and the canals, water routes to the Atlantic, and thus to Europe.

A vast network of **railroads** covers this section, providing numerous additional



Manufacturing plows at the Avery Works, Louisville, Ky. The first room, at the top of the page, shows the casting room where the melted metal is poured into molds to make the shares and other iron parts of the plow. The second is the wood-working room. The third is a "stocking" or setting-up room, where the different parts are put together.



highways for trade, and serving, with their eastern and southern connections, to transmit the merchandise of the Central States to the Atlantic seaboard or to the Gulf. Among the **commercial** cities are Chicago, St. Louis, Cincinnati, Detroit, Louisville, St. Paul, Minneapolis, Duluth, Omaha, Indianapolis, Milwaukee, and Cleveland.

Review Topics.—Location of the Central States and their capitals. Surface. Elevations. Prairies. What States in the Prairie region? What causes the floods? Compare the eastern and the western tributaries of the Mississippi. The climate. Coal fields. Copper. Iron. Lead. Salt. Agriculture, and manufacturing. Fisheries. The commerce. Natural advantages for commerce. How connected with the Atlantic seaboard? Commercial cities.

XXXVII. KENTUCKY AND OHIO.

1. Kentucky.—Kentucky surpasses every other State in the production of tobacco and hemp, though corn is the most valuable crop. The famous blue-grass region, in the Licking and Kentucky river valleys, is one of the finest grazing districts in the United States. Its horses and cattle are very celebrated. Extensive forests of hard wood and rich deposits of coal and iron are found in Kentucky.

The **Mammoth Cave**, in the central part of the State, is one of the most remarkable caverns in the world. It extends underground for miles, but has never been thoroughly explored. It contains a navigable lake of fresh water. The roofs and walls of its chambers are covered with glistening stalactites. The fish that live in its waters are blind.

2. Cities.—The chief manufacturing and commercial city is **Louisville**, the largest tobacco market in the world. Its manufactures include tobacco, distilled and malt liquors, machinery, flour, packed meat, clothing, leather, and cars. The selling of these and other articles makes a large wholesale trade.

It is at the falls of the Ohio, to pass which a canal has been constructed capacious enough to admit the largest steamers that ply on the river.

Opposite Cincinnati are **Covington**, with machine shops and tobacco factories, and **Newport**, with iron and steel works and breweries. **Lexington**, in the midst of the blue-grass country, is a beautiful city. It is a center of the tobacco trade, has large flour mills, and is noted for its institutions of learning.

Paducah, near the mouth of the Tennessee, is an important shipping point for tobacco, pork, and grain. It has car shops and lumber mills. **Owensboro** makes carriages and wagons, and ships large quantities of tobacco. **Henderson** has cotton mills and carriage factories. **Frankfort**, the capital of the State, has boot and shoe factories and lumber mills, and is an educational center.

3. Ohio.—Ohio is the fourth State of the Union in population. The people are largely engaged in manufacturing. The State ranks first in the manufacture

of carriages and clay products, and very high in the production of steel, agricultural implements, and foods.

The coal mines in eastern Ohio are very productive, and the petroleum wells are next in value to those of California.

Ohio is also a leading agricultural State. Grain, live stock, and dairy products are all largely produced. This State ranks high in the production of wool. Tobacco and grapes are extensively cultivated. The Catawba wine is noted.

The State has remarkable commercial advantages.

The **Ohio river** and the **canals** connecting it with Toledo and Cleveland furnish a cheap waterway from the State to the coal, steel, and iron regions of Pennsylvania, West Virginia, and the States bordering on the Great Lakes, and also with the markets of the Mississippi Valley. The Erie Canal and the railways of New York, Pennsylvania, and Maryland connect it with the seaboard.

4. Cities.—The largest city in Ohio is **Cleveland**; it is finely situated on Lake Erie. It has easy access to the coal and oil of Pennsylvania and to the iron of the Lake Superior region. It is therefore noted for the manufacture of iron and steel and the refining of oil. Steel ships, automobiles, clothing, and machinery of every sort are made. Meat packing and the brewing of malt liquors are other leading industries.

Cincinnati is the largest and chief commercial and manufacturing city of the Ohio valley. It has river and railway connections with all parts of the country. Its foundries and machine shops manufacture iron and steel brought through the canals



Lumber yard and railroad bridge at Cleveland. The tall buildings of the city are seen in the background.

from the cities of the smelting region along Lake Erie. Clothing, leather goods, and liquors are the other leading manufactures.

Columbus, the state capital, is centrally situated and has large iron and steel industries. Boots and shoes and malt liquors are next in importance. **Toledo** is an important grain market and has large flour mills, iron works, and petroleum refineries.

Dayton manufactures cash registers, machinery, cars, and automobiles;

Youngstown, near the Pennsylvania border, is the leading city of Ohio in the manufacture of iron and steel; **Akron** manufactures rubber tires and elastic goods; **Canton**, **Lorain**, **Zanesville**, and **Steubenville** are noted for iron



Making automobile tires at the Diamond Rubber Works, Akron, O. After the rubber is mixed with materials to harden it, it is then passed between steel rollers which press it into sheets, as shown in the first view. The second view shows how the tires are built up by laying strips of rubber together; the tires are then vulcanized by placing them in steam-heated chambers which melt the several parts into one solid piece.

and steel products; **Springfield**, for agricultural implements; **Hamilton**, for paper and machinery; **Lima**, for tobacco and locomotives; **Newark**, for its glass works and railroad repair shops; and **Portsmouth**, for boots and shoes.

Review Topics.—In what does Kentucky excel? Describe the blue-grass region. What minerals in the State? Describe the Mammoth Cave. How did the early settlers get their crops to market? Describe Louisville. Covington and Newport. Lexington. Frankfort. Paducah. Maysville. Owensboro. Henderson. Population of Ohio. Mineral Products. Agricultural. How is Ohio connected with the Mississippi Valley and the seaboard? Describe Cincinnati. Cleveland. Columbus. Toledo. Other cities.

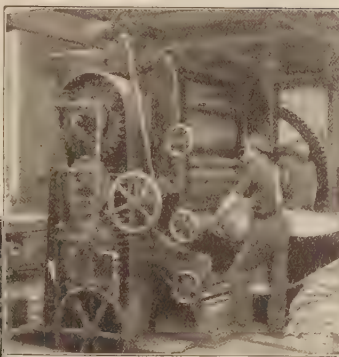
XXXVIII. INDIANA AND ILLINOIS.

1. Indiana and Illinois.—These States are in the prairie region; they have no mountains. Their latitude and climate, their productions and pursuits, are the same. They are among the greatest corn and wheat growing States in the country.

2. Indiana

is the ninth State of the Union in population, and one of the leading Central States in agriculture, stock-raising, wool-growing, and manufacturing. Most of the trunk lines of railway connecting the eastern and western parts of the country cross the State. This fact helps to promote its manufacturing and commercial industries.

Rich coal-fields, petroleum, and natural gas are found near its southern borders.



The **Wyandot Cave** rivals the Mammoth Cave in extent and grandeur. The Bedford limestone, found in the same section, has a national reputation for firmness and is a favorite building stone.

3. Cities.—The capital of the State is **Indianapolis**, the largest and the most important commercial and manufacturing city. The numerous lines of railway which center here furnish it with an abundance of raw materials for its meat packing, flouring, woodworking, and steel industries.

Indiana has twenty-five cities of over ten thousand population each, and more than fifty with a population of over five thousand. Most of these towns are important manufacturing and railroad centers.

Evansville, the second city of Indiana, has important manufactures of flour, furniture, and malt liquors; **Fort Wayne** is noted for the manufacture of machine-shop products and electrical supplies; **Terre Haute**, for distilled and malt liquors, and flour; and **South Bend**, for carriages and wagons, automobiles, agricultural implements, and sewing machines. **Muncie** manufactures glass and automobiles; **Anderson**, iron and steel; **Richmond**, agricultural implements; **Hammond**, distilled liquors, machinery, and canned goods; **New Albany**, leather and steel products; and **Lafayette**, packed meat. **Marion** is in the natural gas region and manufactures machinery and glass. **Elkhart** and **Logansport** have railroad repair shops; and **East Chicago**, iron and steel works. **Michigan City** makes railroad cars.

4. Illinois is now the third State in the Union in population. It is in the prairie region, and has a very fertile soil. Its large crops of corn, oats, and wheat, and its high rank in stock-raising have made it the chief food-producing State. It

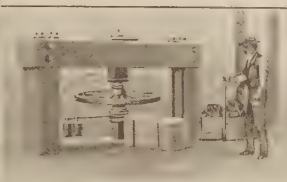
ranks first in the packing of meat and third in manufacturing. Its coal fields, which underlie nearly two-thirds of the State, have greatly helped its industries and made

it next to Pennsylvania in the production of steel. Lead is found and limestone of

excellent quality for building purposes.

5. Cities.—**Chicago** is the most important commercial center on the Great Lakes, and the second in the country. It is the greatest grain market in the world, and the leading market in the United States for live stock, pork, and lumber.

It receives a large part of the produce of the Central States, and



The manufacture of wheels at the Studebaker factory, South Bend, Ind. 1. Putting the spokes and felloes together; 2. Welding tires by electricity; 3. Putting the steel boxes into the hubs by hydraulic pressure; 4. The tires are heated while-hot in the furnace and placed on the wheels; the wheel then drops into a tank of water which cools the tire, causing it to contract, binding all parts of the wheel firmly together.

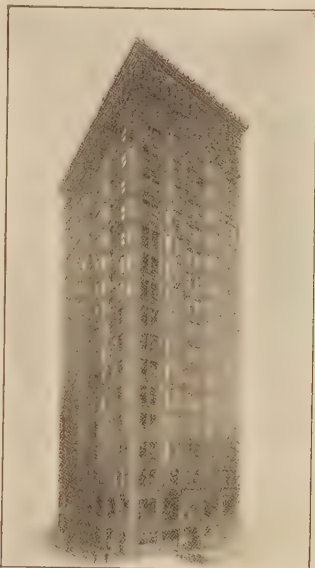
transmits it to eastern and foreign markets. It receives eastern and foreign goods, and distributes them throughout the northwest. Railways and water routes connect it with every part of the country. Its lake traffic is very extensive.

The railway trains that enter or leave the city daily number about two thousand, making it the greatest railroad center in the world.

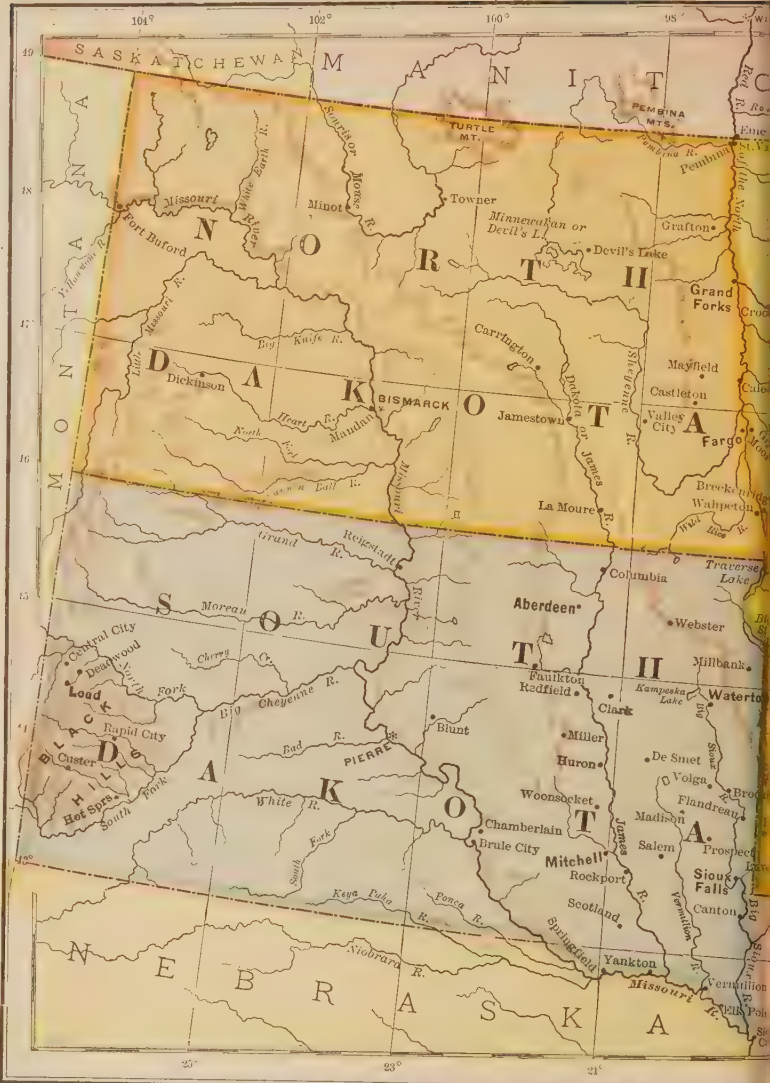
Grain is brought to Chicago in bulk, and raised into elevator warehouses by endless chains with buckets attached. It is then discharged through spouts into boats or cars.

In the value of its manufactures Chicago ranks next to New York. Its facilities for transportation by way of the lakes bring to it the iron, lumber, and fuel needed for its great industry, and have made it the first city in its lumber and furniture products, and the second in its output of iron and steel. It is connected also by canal with the Mississippi river system. This, and the water route by way of the Great Lakes and the Erie Canal, give it cheap transportation to both the Atlantic and Gulf ports. It is the seat of the **University of Chicago**, one of the most richly endowed educational institutions in the United States.

Peoria, the second city in the State, leads in the manufacture of distilled liquors. It is also an important market for grain and farming implements. **East St. Louis**, on the opposite side of the Mississippi from St. Louis, is noted as a railway center and as a place for the transfer of freight between eastern and western lines. It has large flour mills, machine shops, iron and steel works, chemical works, and meat-packing establishments.



A street corner in Chicago, showing one of the tall steel frame buildings.



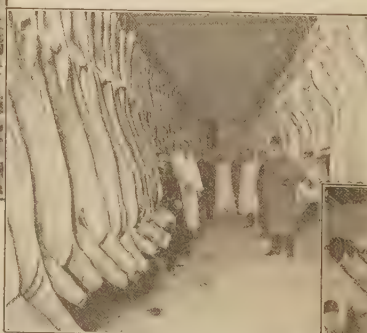
The meat industry in Chicago. 1. The great stockyards where cattle are brought on trains from the West. 2. Cold storage room of a great packing house, where beef is hung awaiting shipment. The temperature of this room is at all times near freezing point. 3. Stuffing sausages in sausage department. 4. Washing butterine preparatory to making oleomargarine.

Springfield, the capital, is in the midst of a productive country, and the center of an active trade. Its manufactures include agricultural implements, boots and shoes, and flour. **Rockford** manufactures furniture, knit goods, and farm implements.

Besides these larger towns, Illinois has about thirty others with a population of over ten thousand. **Quincy** is an important trade-center and has large stove works, meat-packing houses, and machine shops.

Joliet, on the Chicago and Illinois Canal, manufactures iron and

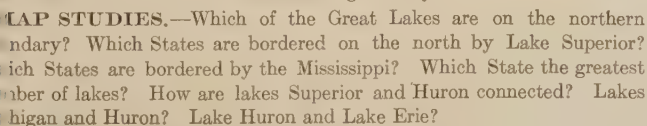
steel, wire, machinery, and coke. **Decatur** is noted for its flour mills and machine shops; **Aurora**, for machinery, motor-cycles, and cotton goods; **Danville** and **Bloomington**, for railroad shops; and **Elgin**, for watches, clocks, machinery, and creamery products.



Evanston manufactures iron, and steel pipe, and is the seat of the Northwestern University. **Rock Island** is an important railroad center. Agricultural implements, lumber, and oilcloth and linoleum are among its manufactures.



Moline is noted for the making of plows, carriages and wagons, iron and steel products, and automobiles; **Galesburg**, for its railroad and machine shops; and **Belleville**, for its stove works and boot and shoe factories.



Routes of Travel.—How would you go by water from Chicago to Detroit? Milwaukee to Duluth? Milwaukee to Fond du Lac? Isle Royale to Lake Erie?



XXXIX. MICHIGAN, WISCONSIN, MINNESOTA, NORTH AND SOUTH DAKOTA.

1. Michigan.—Michigan is divided into two peninsulas: a northern and a southern. It is nearly surrounded by three of the Great Lakes; hence its climate is milder than that of any other inland State in the same latitude.

The **Pictured Rocks** on the southern shore of Lake Superior are colored as though painted. They are cliffs of sandstone.

This State has great **mineral wealth**.

The central and northern parts supply about one-third of the iron and copper ore and salt produced in the United States. The mines of copper on the shores of Lake Superior are among the richest in the world, and make Michigan one of the leading States in the production of this metal. There are also large deposits of coal in the southern peninsula. Gypsum also is found in large amounts. It is used as a fertilizer or is made into plaster of Paris.

Michigan is a **rich agricultural country**.

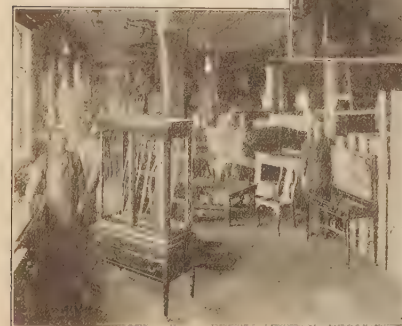
The mild climate of the western shore of the southern peninsula makes it one of the leading fruit regions. Corn, oats, wheat, and hay are leading crops. In the production of sugar beets and potatoes Michigan is one of the leading States. It also ranks high in live stock, and in the production of wool and dairy products. Michigan formerly was first in the production of pine lumber, but the forests have been largely cut away, and its lumber industry is declining. Great quantities of hard wood lumber are brought into the State for the manufacture of furniture, in which Michigan ranks second among the States.

The **lake shore** of Michigan is more than a thousand miles in length—greater than the sea-coast of any State except Florida. The lake trade is therefore very large. Ores and lumber, from the Lake Superior shores, and wheat and flour



The second view shows the cabinet room. Here all the parts are smoothly and accurately finished and are turned over to cabinet-makers to be put together. The strength and durability of furniture depends upon the manner in which this work is done.

from the ports of Wisconsin and Minnesota, are carried to the various ports along the lakes. The ship canal, around the Falls of St. Mary or **The Soo**, connecting Lake Superior and Lake Huron, carries more freight than any other canal



This view shows the trimming room. Here doors are hung, drawers fitted, mirrors inserted, and all fittings, such as handles and knobs, are put on.

2. Cities.—**Detroit** is the largest city and the most important lake port in the State. Its chief manufactures are iron and steel products, packed meat, tobacco, brass and copper work, drugs, and clothing. It leads in the manufacture of automobiles, and has machine shops and wood-working plants of every description. **Lansing**, the State capital, has automobile works and machine shops.

Grand Rapids, the second city in size, has over fifty factories for the making of furniture. **Saginaw** and **Bay City** manufacture beet

sugar, lumber, and machinery. **Kalamazoo** is a paper-making center. **Flint** and **Jackson** are both noted for the manufacture of automobiles, and carriages and wagons. **Battle Creek** has extensive cereal food mills. **Muskegon** manufactures lumber products, machinery, knit goods, and paper. **Port Huron** has large car shops. **Ann Arbor** is the seat of Michigan University. **Pontiac** has automobile works; and **Alpena**, tanneries. **Escanaba** is a shipping point for iron ore and lumber. **Ironwood** and **Ishpeming**



A celery field at Kalamazoo, Mich.

are iron mining centers. **Sault Ste. Marie**, on the Soo Canal, is one of the leading cities of the northern peninsula. The region at the head of Saginaw Bay has numerous salt wells, from the water of which salt is manufactured at Saginaw and Bay City.

3. Wisconsin.—Southern Wisconsin consists of rolling prairies of very rich soil. Oats, corn, barley, hay, potatoes, sugar beets, and tobacco are the principal crops. Stock raising, dairy farming, and fruit growing are large and increasing interests and furnish a large trade.

The northern part of the State has extensive forests of pine, hemlock, spruce, and hard wood, which make it the leading State in lumber products.

The manufacture of flour is an immense industry. Much wheat is imported from neighboring States for the purpose. The manufacture of cheese and butter, tanning and finishing leather, slaughtering and meat packing, are important industries.

Wisconsin has colder winters than Michigan, as the west and southwest winds sweep across the land instead of over water.

Zinc, iron, and lead, are mined.

4. Cities.—The largest city in the State is **Milwaukee**, the chief commercial and manufacturing center, and one of the



Works of the Case Threshing-Machine Company at Racine. Notice the engines used to run the machines and the cases of goods directed to Buenos Aires.

leading grain and lumber markets in the world. It has extensive manufactures of iron, steel, and machinery, malt liquors, leather, and flour. **Superior**, the second city in size, is one of the large flour-milling centers of the country. It also ships much wheat, iron ore, and lumber, and receives coal for reshipment. **Racine**, the third city, has a large lake trade and manufactures agricultural implements, automobiles, and carriages and wagons.

Madison, the capital of the State, is the seat of the State University, and manufactures machinery and farming implements. **Oshkosh** has lumber mills, and watch factories. **La Crosse** is noted for flour and

malt liquors; **Sheboygan**, for furniture and leather; **Green Bay**, for flour, paper and wood pulp; **Kenosha**, for leather, furniture, and automobiles; and **Fond du Lac**, for leather. **Eau Claire** and **Appleton** manufacture lumber and paper. **Wausau** has lumber and flour mills. **Beloit** is noted for machinery; **Marinette**,



Four steps in the manufacture of leather. The first view shows the process of removing the hair from the hides and trimming the sinews, flesh, and other useless parts from them.

for lumber; **Manitowoc**, for malt; and **Ashland**, for its blast furnaces. Many cities bordering the lakes have large shipping interests, and are growing centers of manufacture.

5. The Great Lakes

border chiefly on the Central States, and separate them from the Dominion of Canada.

They are situated upon three terraces, one above the other, so that in going from the sea to Lake Superior, we ascend by three steps. The first step lands us on the Lake Ontario terrace; the second above the Falls of Niagara, on a level with the three middle lakes—Huron, Michigan, and Erie; the third step lands us above Sault Ste. Marie, on a level with Lake Superior, at least 600 feet higher than the sea.

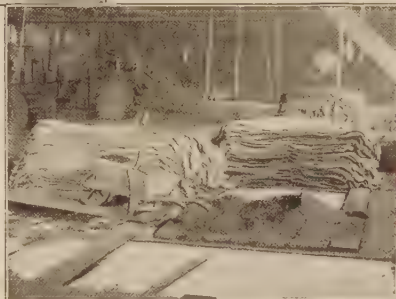
To enable vessels to descend from Lake Superior to the level of the St. Lawrence River and the Atlantic Ocean, canals have been constructed around the Falls of St. Mary and Niagara. The passage around the Falls of Niagara is made by means of the Welland Canal.

The commerce on the lakes is very great; it consists chiefly in the shipment to foreign and domestic ports of coal, iron, lumber, grain, flour, and meat. It employs not less than five thousand steamers and other vessels.

6. Minnesota.—Minnesota is crossed by the ridge, or "Height of Land," which separates the valley of the Mississippi from the northern slope of the Great Central Plain.

On this elevation, both the Mississippi and the Red river of the North take their rise, the one flowing south and the other north. The crest of the "Height of Land" is crowned with lakes of clear water. **Itasca**, one of these, with its tributaries, is the source of the Mississippi.

The Falls of St. Anthony, on the upper Mississippi, are noted for their immense water-power.



The second view shows the tanning yard. The hides, after having the hair removed, are hung into vats containing the extract of hemlock bark, called tannin. At certain intervals, the hides are transferred to other tanks containing stronger and stronger solutions of tannin, until they are changed into leather. This process requires from two to five months, depending upon the kind of leather desired.



The third view shows the shaving machines. These machines remove the roughness and unevenness of the flesh side of the skins, making them as smooth as they are by nature on the grain or hair side.

factures are machinery, malt liquors, boots and shoes, and fur goods. **Duluth**, the third city, stands at the western extremity of Lake Superior, across the harbor from the city of Superior.

It is the principal shipping point for the wheat of the Red river prairies of Minnesota. It also ships much iron and lumber. It manufactures lumber, iron and steel products, and malt liquors.

Winona has a large shipping trade in lumber and wheat, and manu-



The harbor of Duluth. The dark strip in the upper part of the picture is a narrow neck of land seven miles long, which forms the outer protection to the harbor. On it are thousands of summer homes, and a railroad traverses the entire length.

The summers of Minnesota are delightful; the winters are severe, but uniform.

Minnesota is a leading wheat growing State, and stands high in the production of oats and flax.

Much timber is obtained from the forests in the northern part of the state.

Minnesota stands first in the Union in the manufacture of flour, ranks high in the manufacture of lumber and linseed oil, and produces more iron than any other State.

7. Cities.—**Minneapolis**, the largest city in the State, and **St. Paul**, the capital and second in size, are built side by side near the falls of St. Anthony, at the head of navigation on the Mississippi. Though under separate city governments, they form one great commercial center. Minneapolis manufactures more flour than any other city in the world, besides lumber, linseed oil, and machinery. **St. Paul** is the shipping and dis-

tributing point for the entire surrounding region. It is a great railway center and is at the terminus of steamboat navigation. It ships vast amounts of flour and lumber, and receives supplies of every kind for the farming and lumbering districts. Its leading manu-



The fourth view shows the setting room. Here the skins are spread out on tables and are "sticked" or smoothed by means of stone or an instrument with a blunt blade. By this means the skins are made smooth and of uniform thickness. The final operation, which is not shown in the pictures, consists in giving a finish to the surface of the leather by means of varnishes, dyes, or other finishing liquids.

factures flour, medicines, malt, and packed meat. The preparation of flax fiber is also important. **St. Cloud** has flour and lumber mills, and extensive granite quarries. **Virginia** is an iron mining center. **Man-kato** has flour mills, stone and cement industries, and iron foundries. **Stillwater** manufactures boots and shoes, flour, lumber, and farm machinery.

8. North and South Dakota.—North and South Dakota are watered by the upper Missouri, the Red river of the North, and their tributaries. In soil and productions they resemble Minnesota. Stock raising is important in both States.

9. North Dakota.—The principal industry of the State is agriculture, and wheat, oats, barley, and flax are the chief grains grown. North Dakota ranks as a leading State in the production of spring wheat, and also in flaxseed.

The western half of the State is underlaid with vast beds of lignite, a low grade of coal. Fine pottery clays are known to exist.

Cities.—**Bismarck**, the capital, is a commercial center and shipping point for live stock. **Fargo**, the largest city, has great packing industries, manufactures machinery, and is one of the largest distributing points in the United States for farm machinery. **Grand Forks** manufactures boilers, flour, and lumber. **Minot** has a large trade in wheat, live stock, and coal. **Devil's Lake, Valley City, and Jamestown** are



The last bolting room. Here the flour passes through sieves made of the finest silk, which allow only the fine white flour to pass.

in the wheat-growing section and have grain elevators.

10. South Dakota.—The grain productions of South Dakota are the same as those of North Dakota, but include also the finest of corn. The State ranks high in

A packing room. The flour has now reached the bottom of the mill. On each floor it has undergone some part of the manufacturing process. Here it is packed by machinery into barrels and bags and is ready for shipment.

wheat, flaxseed, and beef cattle. Dairying is an important industry.

The only elevations in the State are the Black Hills. Here are very rich gold and silver mines that are extensively worked, the

State ranking high in gold. Gypsum, mica, petroleum, natural gas, and fine building stones abound in the State. The eastern part of the State has many artesian wells which supply not only water for domestic and agricultural purposes, but power for mills and factories. There are considerable flour milling and cheese and butter making in the State.

Cities.—**Sioux Falls**,



The manufacture of flour at Minneapolis. The wheat is first raised by elevators to the top of the mill, which is usually a building from eight to ten stories in height. After the grain is separated from chaff and seeds, it is thoroughly scoured and prepared for grinding. The first picture shows a grinding room, where the grain is passed between steel or porcelain rollers.

the largest city, manufactures flour, bakery products, packed meat, and farm implements. **Pierre** is the capital and is the largest center of the State for handling live stock. **Lead**, situated in the Black Hills region, has one of the largest gold mines in the

world. The extraction of this metal from the ore is the principal industry. **Deadwood** and **Rapid City** are also mining centers. **Aberdeen, Watertown, Mitchell, Huron, and Yankton** are in the wheat-growing section, and have grain elevators and flour mills. **Aberdeen** is supplied with water and power from flowing artesian wells. **Vermilion** is the seat of the State University; and **Brookings**, of an agricultural college.

Review Topics.—Divisions of Michigan. Climate. Mineral resources. Lumber Product. Lake shore. Detroit. Lansing. Grand Rapids. Bay City. Saginaw. Muskegon. Escanaba. Ann Arbor. Name other places. Describe the surface of Wisconsin. Compare its climate with that of Michigan. Mineral resources. Resemblance to Michigan. Leading products. Describe Madison. Milwaukee. Name other thriving places. Oshkosh. Racine. Upon what three terraces do the Great Lakes lie? Height of Lake Superior terrace. How many vessels descend from this height? Describe the commerce of the Great Lakes. What elevation in Minnesota? What rivers rise upon the Height of Land? Direction of flow. Waterfalls. Climate. Rank as a wheat growing State. The lumber trade. Minneapolis. St. Paul. Duluth. Winona. Stillwater. How are the Dakotas like Minnesota? Their chief crops. The chief industries. Chief towns in North Dakota. In South Dakota. Minerals in South Dakota?

MAP STUDIES.—Which of these States is mountainous? Which ones border on the Mississippi? On the Missouri? What river partly bounds them all?

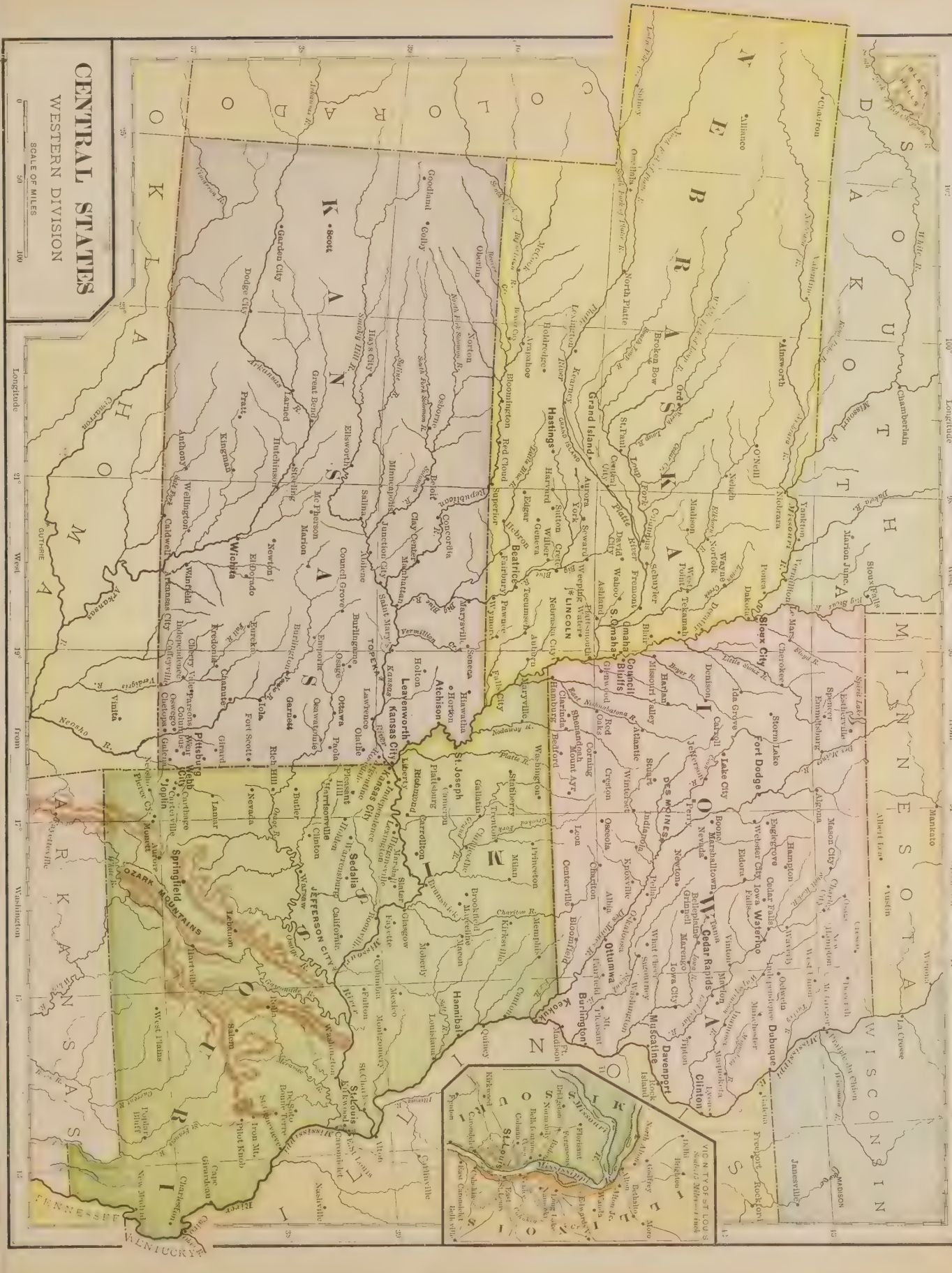
Iowa.—What river separates Iowa from Wisconsin and Illinois? From Dakota? From Nebraska? In what direction do the tributaries of the Mississippi in this State flow? What are the chief branches of the Missouri in Iowa? What cities are on the Mississippi river?

Missouri.—What mountains in southern Missouri? What river forms the eastern boundary? Part of the western boundary? Where does the Osage enter the Missouri? What river joins the Missouri at Kansas City? What is the capital?

Kansas.—Into what does the Kansas river flow? What river traverses the southwestern part of the State? What great river forms part of the northeastern boundary? What part of the State has the most towns? What is the capital?

Nebraska.—What river forms the eastern boundary? What is the general slope of the country? What river crosses the State? In what part of the State are most of the towns? What and where is the capital?

Routes of Travel.—How would you go by steamboat from St. Louis to Sioux City? From Dubuque to Cairo? From Minneapolis to Chicago? From Bismarck to Bay City?



CENTRAL STATES

WESTERN DIVISION

SCALE OF MILES

0 50 100

Longitude

West

from

Washington

12

XL. MISSOURI, IOWA, KANSAS, AND NEBRASKA.

1. Missouri and Iowa.—The climate, soil, and production of these States correspond to those of Kentucky, Ohio, and Illinois.



Views showing the manufacture of plug tobacco at the Liggett & Myers-Drummond factory, St. Louis. The leaves are stripped from the stalks and fed into the upright pneumatic pipes, which carry them into another building.

the Mississippi. North of the Missouri and Osage rivers is a prairie country. South of these rivers it is hilly and rugged. The southern section has considerable mineral wealth, producing zinc, lead, and much coal. Missouri holds a leading place among the States in the production of zinc and lead. Corn is the leading farm crop, the State ranking high in its production. Missouri mules rank first in quality and bring the highest prices.

Other important products are wheat, tobacco, wool, potatoes, and hay. Vineyards and orchards abound and excellent wines are produced.

Missouri is an important manufacturing State and ranks first in the manufacture of chewing and smoking tobacco and snuff. It holds a high rank in meat packing.

3. Cities.—**St. Louis**, as its name implies, was first settled by the French. It is the largest city in the Mississippi Valley and the fourth in size in the United States. It is also the most important commercial center west of the Mississippi, receiving and distributing the products of both the East and West.

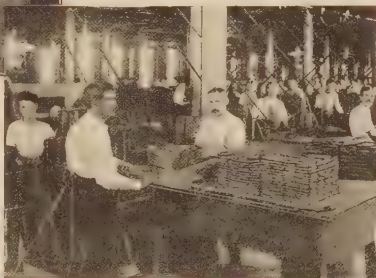
Its situation near the meeting of two great rivers in a region embracing thousands of square miles of fertile land makes it the center of a vast trade. It is one of the leading cities of the country in the value of its manufactures, the chief of these being boots and shoes, tobacco,



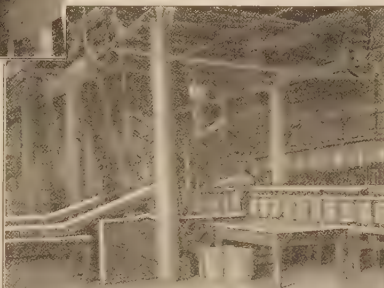
A street in St. Louis. Notice the elevated railway structure.

Immense crops of grain and large numbers of cattle, hogs, and sheep are raised in Iowa and northern Missouri.

2. Missouri is the most populous State west of



The leaves are dipped into a solution of licorice and weighed into packages of uniform size. They are then made into plugs by hand.



The plugs, after being partially pressed by hand, are here put into hydraulic presses and subjected to a pressure of several tons. This gives them a permanent form. The foreground of the picture shows the cases into which the plugs are packed.

packing are the largest industries. The making of butter, cheese, and condensed milk, and the manufacture of flour and lumber are next in importance.

A great many **pearl buttons** are made from the shell of the fresh-water mussel. Bituminous coal is the only important mineral product, Iowa ranking first in its production among the States west of the Mississippi.

5. Cities.—**Des Moines**, the capital and largest city, is in the midst of rich coal fields. It is the chief cattle and grain market in the State, manufactures machinery, medicines, and packed meat, and is a printing and publishing center. **Sioux City**, the second city, is on the Missouri river at the junction of important railroads; it is a meat packing center and has other important manufacturing industries. **Davenport** is well located on the Mississippi near the rapids, which furnish great water power. It is a grain market, and manufactures glucose and starch, machinery, and flour. **Dubuque** has railroad repair shops, and manufactures clothing and lumber.

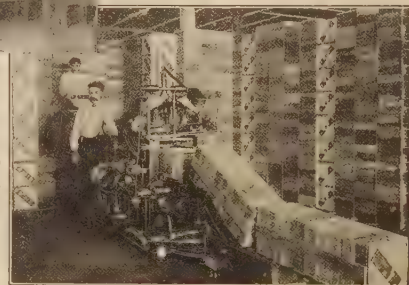
Cedar Rapids manufactures packed meat and other food products; **Council Bluffs**, cars and carriages. **Waterloo** manufactures farm implements and dairy machinery; **Clinton**, glucose and starch, and lumber products; **Burlington**, farm implements and machinery

packed meats, malt liquors, machinery, clothing, and lumber products. Many of these products are sent by water to New Orleans and thence to foreign countries. Railways also connect St. Louis with the Atlantic, Pacific, and Gulf ports and carry the larger part of its trade.

Kansas City, on the Missouri river, is the second city of the State, an important railroad and commercial center, and one of the large live-stock markets of the country. It is continuous with Kansas City in Kansas, the middle of a street being the dividing line. Its manufactures consist largely of flour and building material. **St. Joseph**, the third city, is the center of trade for north-western Missouri. It is in a coal and natural gas region, has large clothing factories, flour mills, and meat packing houses, and a large trade in grain and live stock.

Springfield manufactures flour and vehicles. **Joplin** is an important lead and zinc mining center. Lead smelting and flour milling are its important industries. It also has foundries and machine shops. **Hannibal** has boot and shoe factories, and flouring mills. **Sedalia** is a railway center and has extensive car shops and clothing factories. **Jefferson City**, the capital, manufactures boots and shoes, and flour.

4. Iowa consists mainly in rolling prairies which are exceedingly fertile. It is one of the leading States in the production of corn, oats, and hogs, and ranks high in other grains and live stock. Agriculture, slaughtering, and meat



A nailing machine. The cases of tobacco are put up in blocks of ten.

Ottumwa is engaged in meat packing and in the manufacture of farming tools. **Muscatine** manufactures buttons, and lumber products; **Fort Dodge**, boots and shoes, food preparations, and plaster. **Keokuk** has creameries, and manufactures glucose and starch, and medicines. **Marshalltown** has meat-packing establishments.

6. Kansas and Nebraska.—The eastern portions of these States consist of rolling prairie. The western parts, having a drier climate, are valuable grazing lands. Immense numbers of cattle, horses, and sheep are raised.

Both these States are scantily supplied with timber. Millions of trees have therefore been planted. They grow with great rapidity.

7. Kansas.—The eastern part of Kansas having a mild and moist climate, the soil is exceedingly fertile and enormous crops of corn, wheat, flax, alfalfa, sorghum, and millet are cultivated. Large numbers of hogs are raised.

Deposits of zinc, lead, gypsum, salt, and coal abound, and all are largely worked. The coal beds underlie twenty counties in the eastern part of the State. Vast deposits of petroleum and natural gas have been discovered.

Cities.—**Kansas City**, lying across the State line from Kansas City, Mo., is one of the largest meat-packing centers of the country. It also manufactures flour and is a large market for agricultural machinery. **Wichita** lies on the borders of the agricultural and stock-raising belts. It is a leading shipping center for live stock, and manufactures packed meat, flour, and lumber. **Topeka**, the capital, is a railroad center, and has important car shops, creameries, flour mills, and packing houses.

Leavenworth, on the Missouri, is an important military post. It is in the coal-mining region and has extensive machine shops. **Atchison** and **Hutchinson** are shipping points for flour, grain, and stock. **Pittsburg** is in the lead and zinc mining region. **Coffeyville**, **Parsons**, and **Lawrence** are agricultural and manufacturing centers.



Dipping cattle in petroleum in Nebraska. This cleanses them and improves their health.

8. Nebraska.—The eastern part of this State, where there is plenty of rain, produces enormous crops of corn, wheat, oats, and alfalfa. Hogs are raised in the corn belt. Dairying and fruit raising are important industries. The drier western parts of the State are well adapted to grazing.

The surface of Nebraska slopes eastward and is drained by the deep, muddy Missouri, whose most important tributaries in the State are the Niobrara, the Platte, and the Republican rivers. These streams have broad, sandy bottom-lands, and are fed by thousands of springs. The Republican and the Platte lose much of their water during the summer months.

The extreme western part of the State is occupied by the

mesa and butte region, and in the extreme northwest corner, are the **Bad Lands**.

In these regions the rocky land has been worn by running water into jagged and irregular forms, and is unfit for agriculture or grazing. A *mesa*, or *table*, is a flat-topped hill; a *butte* is a small mesa standing alone.

The chief industries are slaughtering and meat packing, and the making of flour, cheese, butter, and condensed milk.

9. Cities.—**Omaha** is the largest city and chief trading center. It is a center for many railroads, and is therefore a shipping point



Reaping sowed corn for fodder in Nebraska.

and a distributing center. Lead smelting is the leading manufacturing industry. **South Omaha**, adjoining Omaha, is one of the largest meat-packing centers in the United States. **Lincoln**, the capital city, is the chief educational city. It is the seat of the State University, manufactures dairy products, and has a large wholesale trade. **Grand Island** has flour mills and railroad shops.

Review Topics.—Compare Missouri and Iowa. Population of Missouri. Surface. Coal beds. Mineral resources. Leading agricultural products. St. Louis. Its situation. Manufactures. Kansas City. St. Joseph. Jefferson City. Other important places. The surface of Iowa. Minerals. In what is Iowa a leading State? Manufactures. Coal. Des Moines. Dubuque. Sioux City. Other places of importance. Eastern Kansas and Nebraska. Western. The climate of Kansas. Soil. Leading productions. Value as a grazing country. Minerals. Topeka. Kansas City. Other important places. Eastern Nebraska. Western. The climate. Productions. The Missouri and tributaries. The chief manufactures. Omaha. Lincoln.

ROCKY MOUNTAIN AND PACIFIC STATES AND THE TERRITORY OF ALASKA.

This section comprises three divisions: the **Rocky Mountain** region on the east; the **Plateau** region in the center; and the **Coast** region.

STATE OR TERRITORY.	Area in Sq. Miles.	Population, 1910.	CAPITALS.	Chief Cities and their Population.
New Mexico	122,634	327,301	Santa Fé	Albuquerque .. 11,020
Colorado	103,948	799,024	Denver	Denver
Wyoming	97,914	145,965	Cheyenne	Cheyenne
Montana	146,572	376,053	Helena	Butte
Nevada	110,690	81,875	Carson City ..	Reno
Arizona	113,956	204,354	Phoenix	Tucson
Utah	84,990	373,351	Salt Lake City.	Salt Lake City.
Idaho	84,313	325,594	Boisé	Boisé
California	158,297	2,377,549	Sacramento ..	San Francisco ..
Oregon	96,609	672,765	Salem	Portland
Washington	69,127	1,141,990	Olympia	Seattle
Alaska Territory.	590,884	64,356	Juneau	Fairbanks

XII. ROCKY MOUNTAIN REGION.

1. This region embraces the States of **Colorado, Wyoming, Montana, and New Mexico.**

2. **Surface.**—It is the most mountainous portion of the country. It extends on both sides of the Rocky Mountains, and includes the most elevated portions of the **Great Plains**, which stretch along the eastern base of the mountains.

Its general elevation is about 5,000 or 6,000 feet above the sea level. Scores of its peaks are from 12,000 to 14,000 feet high. These mountains form the **loftiest watershed** in the United States.

3. Rivers.—

Here are the sources of all the great rivers which flow eastwardly into the Mississippi, as well as the largest streams that flow into the Pacific.

The most important are the **Missouri, the Yellowstone, the Platte, and the Arkansas** on the east, and the **Columbia and Colorado** on the west.

On the peaks and in the gorges of the mountains are lodged immense quantities of snow. The melting of this snow in warm weather feeds the rivers on each slope, and prevents them from running dry in summer.

4. **Irrigation.**—Descending from a great elevation, the waters of the rivers are readily applied to the purposes of artificial irrigation.

This is necessary throughout the Rocky Mountain region, owing to the very scanty rainfall. Water is led or pumped from the upper courses of rivers into reservoirs, from which it is piped to channels cut through the fields of growing crops. The fields are flooded from three to five times during the growth of the crops.

5. **Climate.**—The climate is remarkably dry and bracing.

MAP STUDIES.—What States are crossed by the Rocky Mountains? By the Cascade Mountains? By the Sierra Nevada? Where do the Green, White, and other tributaries of the Colorado rise? What States are separated by the Columbia? Into what does this river flow? Through what range does it break?

New Mexico.—What rivers traverse New Mexico? In what direction do they flow? Where is the capital?

Colorado.—Where is Pike's Peak? North Park? Middle? South? San Luis? In what direction does the North Platte flow? The South Platte? The Arkansas? Rio Grande? Grand? Where is the capital?

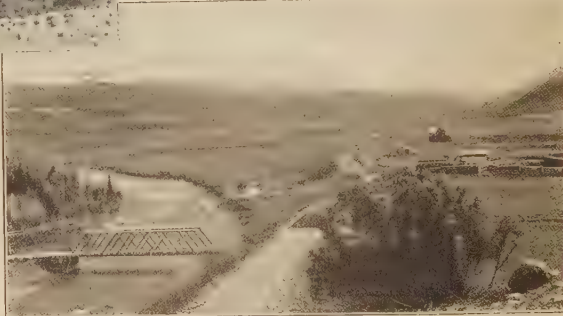
Wyoming.—Where are the Wind River Mountains? The Sweet Water? Big Horn? Black Hills? Where is Fremont's Peak? The National Park? What rivers rise in this park? What lake in it? What and where is the capital?

Montana.—What range separates Montana from Idaho? What lake in the northwestern part? What two rivers traverse this State in an easterly direction? What river flows westerly into the Columbia? What Indian tribes in Montana? What and where is the capital?

Nevada.—What is the longest river in Nevada? Into what lake does it flow? Where are two desert regions? Where is the capital? Virginia City?



View of the Rocky Mountains from the plateau at Colorado Springs, showing Pike's Peak towering above the range.



Mount Sopris, Colorado, and the valley of Roaring Fork.—A ranch may be seen on the right of the picture.

6. **Resources.**—This region possesses vast mineral wealth, and mining is the most important occupation of the people. The Great Plains are the chief grazing district of the continent.

In summer large areas of them are covered with grass, which, uncut, becomes self-made hay.

7. **New Mexico** was formerly a part of Mexico and was settled by emigrants from that country. Many of the people still speak Spanish. There are many Indian villages in the State consisting of pueblos; that is, large buildings several stories high made of sun-dried bricks. The stories are arranged in terraces

and the rooms are entered by ladders from the roof or from the ground.

The leading industries of the State are **stock raising and mining**. Copper and lead are smelted, coal is abundant, and there are numerous gold and silver mines.

New Mexico lies in a region of scanty rainfall, but wherever water is obtainable for irrigation the soil is found to be fertile and very productive of corn, wheat, and fruits. Cattle raising, wool growing, and the culture of grapes and fruits are important industries. Agriculture is growing in importance.

8. Cities.—

Santa Fé, the capital, is 6,840 feet above the sea level. It was founded by the Spaniards in 1582 on the site of a pueblo village, and is the second oldest city in the

United States. The houses are chiefly of adobe (sun-dried brick). **Albuquerque**, the largest city, is in a fruit-growing region. It is at a junction of railroads and is the most important trading center. It is the seat of the **University of New Mexico**.

Las Vegas has become noted as a health resort on account of

Arizona.—What river on the west? What river in the south? What and where is the capital? Where is the Grand Cañon? Tucson?

Utah.—What two mountain ranges in Utah? What great lake? What lake south of Great Salt? Where is the Green River? Salt Lake City? Ogden?

Idaho.—What mountains form the northeast boundary? The western? What river crosses the southern part of the State? Where is the Salmon river? The capital? Montpelier? Weiser?

California.—What range of mountains near the coast? What range east? Where is Mount Shasta? Mt. Whitney? What river forms part of the eastern boundary? What two drain the valley of California? Direction? Where is the capital? San Francisco? Los Angeles? San Diego? Santa Barbara? Stockton? Oakland?

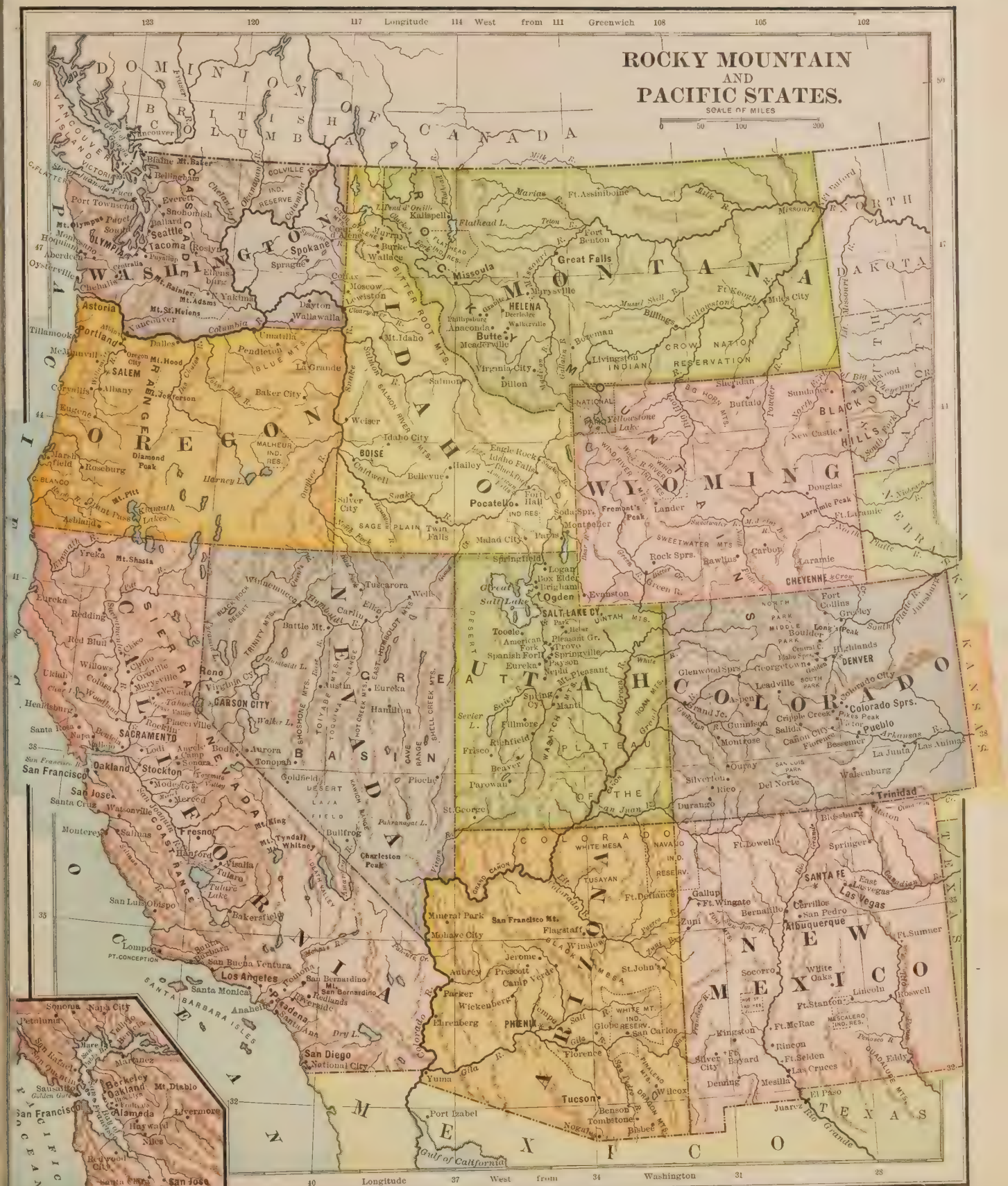
Oregon.—What mountain range crosses the State? What river forms part of the northern boundary? The eastern? Which breaks through the Cascade range? Which flow north into the Columbia? Where is Mt. Hood? The capital? Portland? Oregon City? Astoria?

Washington.—By what mountains is Washington crossed? Where is Mt. St. Helens? Mt. Adams? Mt. Baker? Rainier? Puget Sound? Strait of Juan de Fuca? What river drains and partly bounds Washington? Where is the capital? Seattle? Tacoma? Spokane?

ROCKY MOUNTAIN AND PACIFIC STATES.

SCALE OF MILES

0 50 100 200





The Portals; canyon of the Grand river, Colo. This river has cut its way for thousands of feet through the sand stone rock. Notice how the cliffs are worn away by the action of the weather.

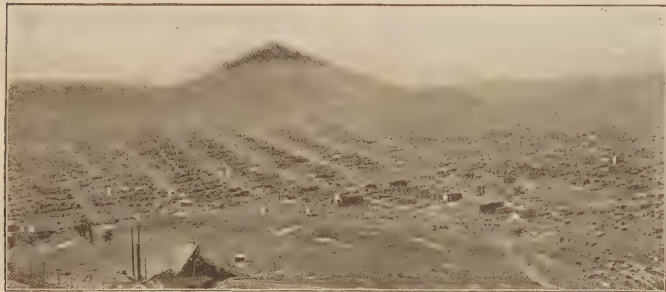
its hot springs. It is in a wool-growing district. Zuni is an Indian village on a reservation; near it are some remarkable ruins of pueblos which were once inhabited by people of a much higher civilization than that of any of

the Indian tribes which were found in the United States.

9. Colorado.—Colorado contains several of the highest and most noted peaks of the Rocky Mountains, and immense elevated valleys called parks. These parks are enclosed by lofty mountains. The largest exceeds in size the State of Connecticut.

Among the mountains of this State are the head-springs of four large rivers; namely, the Colorado, flowing west into the Pacific; the South Platte, flowing in the opposite direction to join the Missouri; the Rio Grande, and the Arkansas.

Colorado is rich in gold, silver, copper, coal, and iron. It is first among the States in gold production, and ranks high in silver



A view of Cripple Creek, in the heart of the Rockies in Colorado.

and lead. It was formerly considered too arid for agriculture, but by means of irrigation and improved methods of cultivation, Colorado now produces from her farms greater values than from her mines. Alfalfa, wheat, and sugar beets are important crops.

10. Cities.—**Denver**, the capital, is the largest city in the Rocky Mountain region. It is a railroad and commercial center. Packed meat, refined lead and copper, printed matter, and machinery are among its varied manufactures. **Pueblo** is an important city, with smelting-works, rolling-mills, and machine shops. **Colorado Springs** is widely known as a health resort. **Trinidad** has agricultural and coal-mining interests. **Boulder** is a mining center and the seat of the State University.

At **Manitou**, near Colorado Springs, are four remarkable mineral springs. At **Golden** is located the State School of Mines.

11. Wyoming.—Wyoming, like Colorado, is a region of elevated plains, mountains, and valleys.

It contains the sources of the Missouri, the Columbia, and the Green rivers.

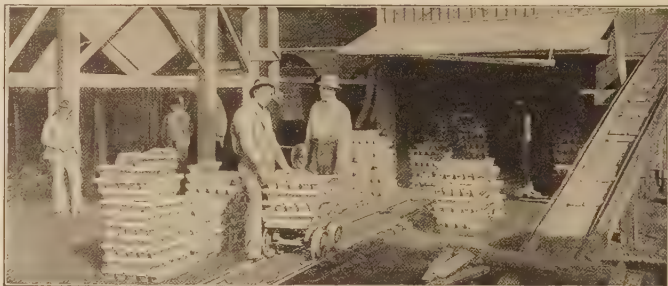
The **Yellowstone National Park**, situated in the northwestern

corner of Wyoming, is a tract of land 55 by 65 miles, set apart by Congress as a national park, or pleasure ground. It is remarkable for its lakes and waterfalls, its deep cañons, boiling springs, and geysers.

The **Old Faithful** geyser spouts every fifty-five minutes and sends up a stream of water 150 feet high. The cañon of the **Yellowstone** is a gorge from 1,000 to 1,200 feet deep.

Rich coal-beds are found in many parts of the State, and valuable deposits of gold, silver, copper, and iron.

The soil in the river valleys, wherever irrigation is employed, produces abundant crops of grain. The United States Government has built enormous irrigation works on its public lands,



Silver bars, called bullion, at the smelter in Leadville.

which are being opened to the public to settle on and purchase. Grazing is an important industry.

Wyoming ranks second in the amount of **wool** produced yearly.

12. Cities.—**Cheyenne** (*shī-en'*), the capital, is a great cattle market. **Laramie** is the seat of the State University. **Sheridan** and **Rock Springs** are the leading coal-mining centers. **Rawlins** and **Caspar** ship much wool. **Evanston** has coal mining and stock-raising interests.

13. Montana.—Montana ranks high among the States in the production of copper. It abounds also in mines of gold, silver, and lead. The river valleys have a fertile soil and rich pasturage. Stock-raising and wool-growing are important industries.

In the center of the State are the **Great Falls** of the Missouri river, among the most picturesque in America.

The head of navigation of the Missouri is at **Fort Benton**, about 2,500 miles above St. Louis, but navigation is tedious and difficult. The voyage up takes sixty days; down, ten or twelve.

14. Cities.—**Helena**, the capital and chief commercial center of Montana, is beautifully located on the foothills of the Rocky Mountains. It has large gold mining interests, and is the chief market for mining machinery. **Butte** is noted for its great output of copper ore. **Anaconda** has the largest copper smelting works in the world. **Great Falls** is built at the falls of the Missouri river



A field of boulders in northern Colorado. These have been brought down from the mountains by glaciers, one of which may be seen on the side of Long's Peak, in the distance.

and is engaged in wool shipping and the reduction of copper ore. **Missoula** is in a mining and farming region, and is the seat of the State University. **Billings** is a shipping point for live stock, and **Kalispell** is in an agricultural and lumbering region.

Review Topics.—States of the Rocky Mountain region. Describe the surface. Rivers. Why is irrigation necessary on the Great Plains? Describe the method. The climate. The chief resources. By whom was New Mexico settled? Chief products. Santa Fé. Las Vegas. Zúñi. The mountain peaks of Colorado. The great Parks. Rivers. Mineral productions. Agriculture. Denver. Leadville. Colorado Springs. What State does Wyoming resemble in surface? Yellowstone Park. Describe the mineral resources of Wyoming. The river valleys. The capital. In what does Montana abound? What portions of the State are fertile? The Missouri river is how far navigable? What are the chief trade-centers?

XLII. THE PLATEAU REGION.

1. The Plateau Region lies between the Rocky Mountains and the Sierra Nevada and Cascade ranges. It is several thousand feet above the sea, and varies in breadth from 300 to 700 miles.

It contains the four States of **Nevada, Idaho, Utah, and Arizona.**

2. Surface.—The surface is very rugged. Mountain ranges traverse it in various directions. The **Wasatch**, one of the loftiest of these ranges, lies between the **Great Basin** and the **Plateau of the Colorado**. The Great Basin is 3,000 feet lower than the Plateau of the Colorado. It embraces the western part of Utah and nearly the whole of Nevada. Much of this region is barren, occupied by sandy and salty lands and salt lakes.

Among its remarkable features are the gorges called **cañons**, often several thousand feet in depth. They have been cut by the rivers through layers of rock.



The simplest method of irrigating a field is to let the water in through a ditch and to flood each part of the field in succession by building a little dam across the ditch, as shown in the picture.

region, artificial irrigation is resorted to on an immense scale.

The prevailing winds come from the Pacific laden with moisture; but in crossing the cold peaks of the Sierra Nevada they are chilled, and deposit their moisture as rain or snow. When, therefore, they reach the Plateau region they are **dry winds**.



Grand Cañon of the Colorado in Arizona. Here the swift current has cut its way through the sandstone rock to a depth of about 6,000 feet. Notice the layers or strata of rock, and the crumbled rock or talus which has gathered at the foot of the cliffs and is washed away at high water.

[Copyright, Detroit Photo. Co.]

Zinc, copper, and lead are also mined.

The **Muddy Salt Mine** is the largest deposit of rock-salt known in the country. It is two square miles in area.

Some of the valleys are very fertile, and **stock-raising** is one of the chief occupations. Most of the State, however, is unsuitable for agriculture, except where water can be obtained.



Irrigation. Sometimes a reservoir to hold water for irrigation is made by building a dam across a stream. Sometimes the water has to be pumped into a reservoir or into a flume, as shown in this view at Elgin, Utah. This water wheel runs the pump for irrigation.



Irrigated field at Greenville farm, Utah. Notice the pipe or flume through which the water is brought to the field, and the number of smaller pipes which distribute it over the field.

The most noted is the **Grand Cañon of the Colorado**. It is more than 300 miles long, and from 3,000 to 6,000 feet deep.

3. The climate is marked by great dryness.

As in the Rocky Mountain

hot springs in this neighborhood make it a resort for invalids. **Goldfield** is the center of a rich gold mining district. **Tonopah** is noted for its gold and silver mines.

8. Arizona.—The northeastern part of Arizona is a high plateau ranging from 5,000 to 8,000 feet above sea level, with ranges of mountains formed by volcanic action. This part of the State has rainfall sufficient for cattle and sheep raising, which is an important and lucrative industry.

The southwestern part of the State is much lower and has even less rain than the more elevated portion, but by **irrigation** it is becoming one of the best fruit-growing regions of the country.

The most important occupation is **mining**, and the State ranks

Owing to the almost entire absence of moisture, changes in temperature are very rapid. It is often 70° or 80° at noon, and below freezing-point at sunrise.

4. Minerals.—The hills and mountains that rise up from this plateau are stored with rich mineral deposits. Silver, gold, copper, lead, and other metals are found, with beds of salt and soda of unknown extent. The chief industry, therefore, is mining.

5. Vegetation.—Large areas of this region are barren wastes covered with gray sage-brush and cactus. The river valleys, however, if irrigated, are extremely fertile.

6. Nevada.—Nevada occupies a large part of the Great Basin. Its mines constituted its chief source of wealth. Until recently, they produced a large part of all the silver annually mined in the United States. Gold mining is now more profitable.

7. Cities.—**Reno**, the largest city, is a commercial, manufacturing, and educational center. **Carson City**, the capital of the State, is near gold and silver mines, and has mills for the extraction of these metals. The



Provo Valley, Utah.

high in the production of copper, and has beside extensive gold, silver, and lead mines. The smelting and refining of copper ores is the most important industry.

Cities.—**Tucson**, the largest city, is the seat of the University of Arizona. It is an important mining center and has smelters for the reduction of gold, silver, and copper ores. **Phoenix**, the capital, is in the center of a well-irrigated farming region. Both cities have a large trade in mining outfits and machinery.

9. Utah.—Utah is traversed from north to south in its eastern half by the Wahsatch Mountains. At their western base lies the Great Salt Lake, 75 miles long. The western part of the State lies in the Great Basin. The rainfall throughout the State is very slight, but by irrigation the agricultural resources have been wonderfully developed. Beet raising and sugar manufacture are profitable industries. Sheep raising is very important, and much wool is exported.

Mines of gold, silver, lead, and copper are extensively worked.

Utah is inhabited largely by the Mormons or Latter-day Saints.

Cities.—**Salt Lake City** is the capital and the largest and most important city in the State. It has wide, beautiful streets and is the center of the Mormon religion. It is the meeting point of several trunk lines of railway and commands the trade of an extensive and fertile region. **Ogden** is an educational center and has factories for the production of packed meat, canned goods, beet sugar, and flour.

Provo, in an agricultural region, has woolen and knitting mills. **Logan** is located in a fertile valley. The State Agricultural College and a beet-sugar factory are located here.

10. Idaho.—Idaho is in large part mountainous. It ranks high in the United States in the production of lead, and large amounts of gold, silver, and copper are mined. Many other minerals are found, but are not extensively mined.

The State is well covered with valuable pine forests from which much lumber is cut. Sheep and cattle raising are very important industries. The soil is rich, but the rainfall is slight. Many private irrigating canals have been constructed, and several million acres have been reclaimed and made crop producing. The chief agricultural products of the State are wheat, oats, barley,

alfalfa, and sugar beets. The manufacture of beet sugar is growing in importance.

Cities.—**Boise**, the capital, manufactures iron and lumber, is a



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Pacific Ocean and the rocky coast at San Francisco. The city is on a peninsula about six miles wide enclosed by the Pacific Ocean. San Francisco Bay and the strait called the Golden Gate, which connects them. The wharves are on the bay, which furnishes the best harbor on the Pacific Coast.

shipping point for wool, hides, and fruit. A government Assay Office is located here. **Pocatello** is an important commercial center.

Review Topics.—Describe the Plateau Region. The cañons. Climate. Industries. The vegetation. Nevada. Its silver. Describe the Muddy Salt Mine. Why is the State not adapted to agriculture? Describe Virginia City. The capital. Describe surface of Arizona. Its rainfall. Industries. Centers of trade. What mountains traverse Utah? Locate Great Salt Lake. The mineral productions. Agricultural resources. The inhabitants. Capital. Ogden. Describe Idaho. Its resources. Capital. Other leading towns and their industries.

XLIII. COAST REGION.

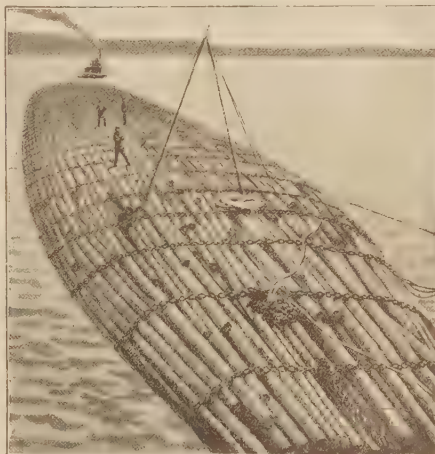
1. This region embraces **California, Oregon, Washington, and Alaska**. Excluding Alaska, it is traversed from north to south by the Sierra Nevada and Cascade ranges. The low Coast range stretches along the shore. Between these ranges lie great valleys. They form the most important parts of this region.

The principal rivers are the **Columbia**, which, in the lower portion of its course, forms the boundary between Oregon and Washington, and the **Sacramento** and **San Joaquin** (*san wah-keen'*), which traverse the **Valley of California**.

2. Climate.—The climate of this region is widely different from the climate of the Atlantic coast in the same latitude. This is caused by the prevailing winds. In both regions these are westerly. But on the Atlantic side they are from the land, and in winter are cold; on the Pacific side they come from the sea, and are warm and moist.

Oregon is in the same latitude as the **New Eng-**

land States. *Raisins, prunes, and apricots are dried in the open air in California. This shows an orchard, and the process of drying apricots in the San Joaquin Valley, California.*



A raft of logs in the Columbia river, Oregon.
[By courtesy of the Four Track News.]

for the most part, much farther north. In New England the farmers have to house and feed their cattle all the winter, while in Oregon and Washington the pastures are green all the year round. The west winds and the **Japan Current** give these States a mild, moist climate.

Summer and winter in California are called respectively the **dry season** and the **rainy season**. In summer, for weeks together, not a drop of rain falls. In Oregon and Washington, however, the **summer rains** are somewhat more copious, and the country is well watered.

3. Resources.—The deposits of gold and quicksilver in this region are among the richest in the world. The soil of the valleys is marvellously productive.

The fruits, flowers, and vegetables are famous for their beauty and size. Sixteen hundred pounds of hops to the acre are not unusual returns. Immense herds of cattle and flocks of sheep find rich pasturage.

The **slopes** of the mountains are covered with forests of pine, fir, and cedar.

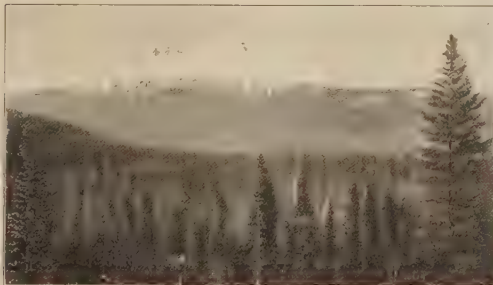
4. California is the oldest of the Pacific States.

The Spanish Franciscan Friars established **missions** or settlements in it at an early day. But it was thinly settled until, in 1848, it was ceded by Mexico to the United States. Soon after this gold was discovered, and people flocked to the mines from all parts of the world.

California is the **second State** in the production of gold, and is one of the chief sources of the world's supply of quicksilver.

Agriculture is by far the most important industry of the State. The irrigated lands are larger in aggregate area than Connecticut. Barley, wheat, alfalfa, potatoes, hops, and the sugar beet are extensively grown. Much wheat and barley of excellent quality are shipped to Europe by the Cape Horn route. It is also a fine grazing country.

Oranges, lemons, olives, almonds, and grapes flourish luxuriantly in southern California.



Mt. Shasta, California, which was once an active volcano.
[Copyright, Detroit Photo Co.]

Union in the production of both wine and beet sugar.

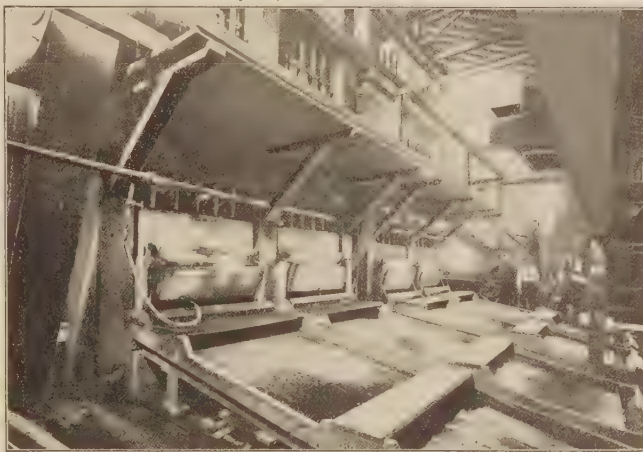
5. California is noted for its remarkable scenery.

The **Yosemite** (*yo-sem'i-te*) Valley is a gorge of singular grandeur. Its rocky walls are from three to five thousand feet in height. The **Merced River** flows through it, and makes a series of wonderful cascades, one of which, the Nevada Fall, is six hundred feet high.



The harbor of San Francisco, showing San Francisco Bay, over which most of the freight and passengers coming by rail to the city cross from Oakland on ferryboats.

Some of the largest and loftiest trees in the world are found on the slopes of the Sierra Nevada. They are gigantic evergreens. Many of them have each a diameter of 40 feet, and are more than 300 feet in height.

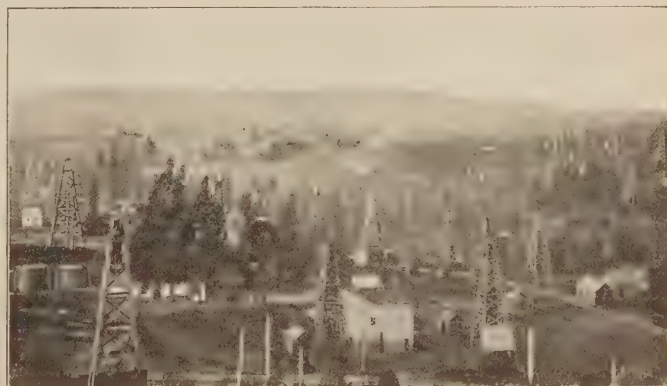


Much of the gold dug from mines is embedded in hard rock. This rock is broken up into small pieces which are crushed into powder in a "stamping mill." The stamps are immense pestles, weighing over 1,000 pounds, which are raised by machinery and are dropped upon the rock, crushing it into powder. Flowing water washes the powdered rock over copper plates covered with quicksilver, to which most of the gold adheres, while the sand is washed on to the boxes which you can see at the end of the plates. The quicksilver is evaporated, leaving the pure gold. Some gold is left in the sand and is taken out by a process called "concentration."

6. Cities.—San Francisco is the largest and most important seaport on the American shore of the Pacific. Steamers connect it with China, Japan, Australia, Alaska, and the Hawaiian and Philippine Islands.

By means of these steamship lines and the Pacific railroads a large and growing trade is carried on between these countries and the United States. Most of the **silk** and **tea** brought from China and Japan come by way of San Francisco. **Raw sugar** is brought from the Hawaiian Islands and refined. Other leading industries are meat-packing and the manufacture of iron and steel products.

Los Angeles, the second city in size, is the center of a rich oil and fruit region, manufactures packed meat, machinery, lumber, and flour. The city includes the port of San Pedro. **Oakland** is a railroad terminus, whence freight and passengers go by ferry to San Francisco. Lumber working, and canning are its leading industries. **Sacramento**, the capital, has machine shops and steel works, and a large wheat and flour trade.



Petroleum wells near Pasadena.

Berkeley, on the eastern side of San Francisco Bay, is the seat of the **University of California**. It has machine shops, oil, and fertilizer

works. **San Diego** has a good harbor, and exports wheat and fruit. **Pasadena** is a noted winter resort and fruit-growing center. **San José**, in the beautiful Santa Clara Valley, has large fruit canning, packing, and drying establishments; nearby are the **Stanford University** and the famous **Lick Observatory**. **Fresno** is located in the fruit-growing region. Its chief industries are the drying and canning of fruits, olives, and figs, and the manufacture of olive-oil, wine, and brandy. **Alameda** is engaged in shipbuilding and in the manufacture of lumber and clay products. **Stockton** is situated in a very fertile plain. It is an important center of trade, and has large flour mills.

7. Oregon.—The State is in the same latitude as New England, but the climate in the eastern part is not unlike that of Maryland, while west of the Cascade Mountains it is even milder than Maryland in winter, but not so oppressively warm in summer.

The valleys that lie between the Cascade and Coast ranges are very fertile and yield abundant crops of cereals and fruits without irrigation, and larger areas in the eastern part of the State are being brought under a high state of cultivation by irrigation. Hops and hay are valuable crops.

Stock-raising and wool-growing are important industries.

The western slopes of the Cascade and Coast ranges are covered with vast forests, and the cutting of timber is a leading occupation.

The yield of gold and silver is important.

Coal and iron are abundant.

The streams abound with excellent fish.

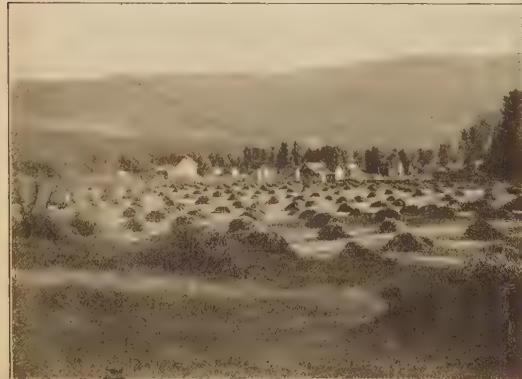
Immense quantities of salmon are canned and exported.

Cities.—**Portland**, the largest city, is at the head of ocean navigation on the Willamette river and is an important railway terminus. It exports more lumber than any other port in the world; flour, salmon, dairy products, and wool are next in importance.

Salem, the capital of the State, has industries similar to those of Portland. **Astoria**, at the mouth of the Columbia river, is noted for the preserving of salmon.

8. Washington.—The part of the State east of the Cascade Range lies in the Columbia plateau. It is a fine agricultural region and raises much wheat and other grains, hay, potatoes, hops, and fruit.

The western part of the State contains extensive forests of pine, cedar, hemlock, and spruce. The manufacture



A field of alfalfa at Union, Ore. Alfalfa is a forage plant well adapted to a dry climate. With irrigation, five or six crops can be raised each year.

and export of lumber is the most important industry in the State.

Puget Sound, with its connections, furnishes navigable routes for a distance of nearly two



Shipping wheat.—Pendleton, Ore.

hundred miles into the interior. An abundance of coal is found in the vicinity, making Washington the largest coal-producing State on the Pacific coast. The waters of the sound and its tributary rivers swarm with salmon and other fish. The preserving and shipping of fish is one of the large industries.

Cities.—**Seattle** is the largest city and chief seaport. It is the terminus of three great trans-continental railway lines and has steamship connections with all parts of the world. Its great

industries are meat packing, flour milling, and the handling of lumber and coal. **Seattle** is the seat of the State University. **Spokane**, the second city in size, is a great railway junction point. It has fine water power and extensive manufactures of lumber and iron. **Tacoma** is a very important railway center and seaport. It ships wheat, lumber, and coal. **Tacoma** has large lumber mills. **Walla Walla** is situated in the center of a very productive



The water front at Tacoma.—Vessels loading with wheat from storehouses on the wharf.

wheat and fruit-growing region.

Olympia, near the southern end of Puget Sound, is the capital of the State. It has fishing and lumber industries. **Bellingham**, a flourishing town in the northwestern part of the State, has lumber and iron industries and fish canneries. **Everett** manufactures lumber, iron, and furniture.



Harbor of Seattle. Steamer leaving for Alaska.

9. Alaska.—The territory of Alaska was purchased from Russia in 1867. Its shores are bathed by the Japan Current, a mighty current in the Pacific resembling the Gulf Stream in the Atlantic. The westerly winds that blow over this current temper the climate of Alaska and the Aleutian Islands, as the winds from the Gulf Stream temper that of Norway and Iceland.



Juneau, the capital of Alaska.

Mt. St. Elias, 18,010 feet high, with its everlasting cap of snow, stands as a landmark between Alaska and the British Possessions.

The **Yukon** is one of the largest rivers in North America. It is 80 miles wide at its mouth, and 10 miles wide 800 miles above its mouth.

The **prevailing winds** are westerly. Coming from the sea, they give a moist climate to the coast, in the neighborhood of which heavy forests of spruce, fir, cedar, hemlock, alder, and pine are found.

Grass grows luxuriantly in places, but the **summers** are too short and cool for general agriculture.

Coal and other **minerals** are abundant. The **gold** deposits are among the richest in the world.

The inhabitants are mainly **Eskimos** and so-called **Indians**, who,

however, differ greatly from the Indians in other parts of the **United States**. They live by fishing, and hunt seals, sea-otters, martens, foxes, and bears. The fur-seal fishery is the most valuable in the world. The



Cape Nome. Notice the camp in the foreground where gold is being mined on the shore.

seals are taken on and near the **Pribilof Islands**. The cod, salmon, and herring fisheries also are of immense value. At certain seasons the salmon fairly choke up the fresh-water streams on their way to the spawning grounds.

The capital is **Juneau**. **Nome** and **Juneau** are mining centers.

The **Aleutian Islands** are volcanic and treeless; the natives live in **barabaras**, structures half above and half below the ground. They make the frames of their walrus-skin canoes of wood drifted from Asia and cast upon their shores by the **Japan Current**.

Review Topics.

—States in the Coast Region. Mountains. Rivers. Describe the climate. Compare

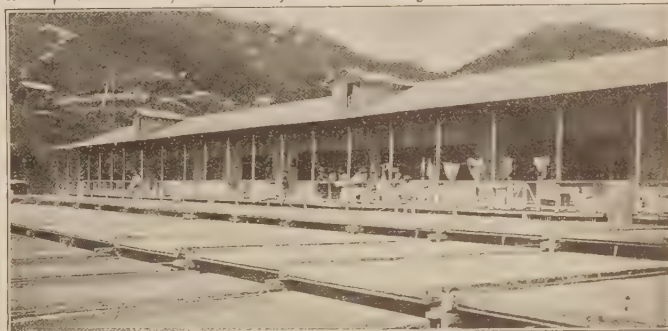
Placer mining in Alaska. The sand and gravel is washed down through a long trough which has slats across the bottom. The water carries the sand and gravel away, and the gold, being very heavy, is caught by the slats and picked out by hand. The seasons in California? Mineral deposits? Agricultural resources? The forests? Settlement of California? Its gold product? Most important industry? Leading agricultural products? Fruits? Wine and wool product? Describe the Yosemite Valley. The great trees.

Describe San Francisco. Other important cities. What of the climate of Oregon? Products? Most fertile part? The capital? Washington. Alaska. The Aleutian Islands.

XLIIIIa. THE ISLAND REGIONS.

1. The Island Regions belonging to the United States are **Porto Rico**, with adjacent islets; the **Hawaiian Islands**; the **Philippines**; **Guam**, one of the **Ladrones**; and **Tutuila** and **Manua**, islands of the **Samoan group**.

2. **Situation and Climate**.—**Porto Rico** is in the Atlantic Ocean; the others are in the Pacific. All are within the tropics, and within the region of the northeast trade wind. Their climate and productions, therefore, are naturally much alike.



The plaza or public square of a town in Porto Rico. Notice the coffee spread out to dry.

3. **Porto Rico** is the smallest of the four "**Greater Antilles**."

4. **Rainfall**.—Mountains cross the island from east to west, and greatly influence the rains. Driven up the mountain slopes, the warm northeast trade wind, freighted with moisture, rises into cool atmospheric regions. A copious rainfall is the result. The **northern part** of the island is watered by more than a thousand streams, yet sometimes the **southern part**, screened by the mountains, suffers from drought.

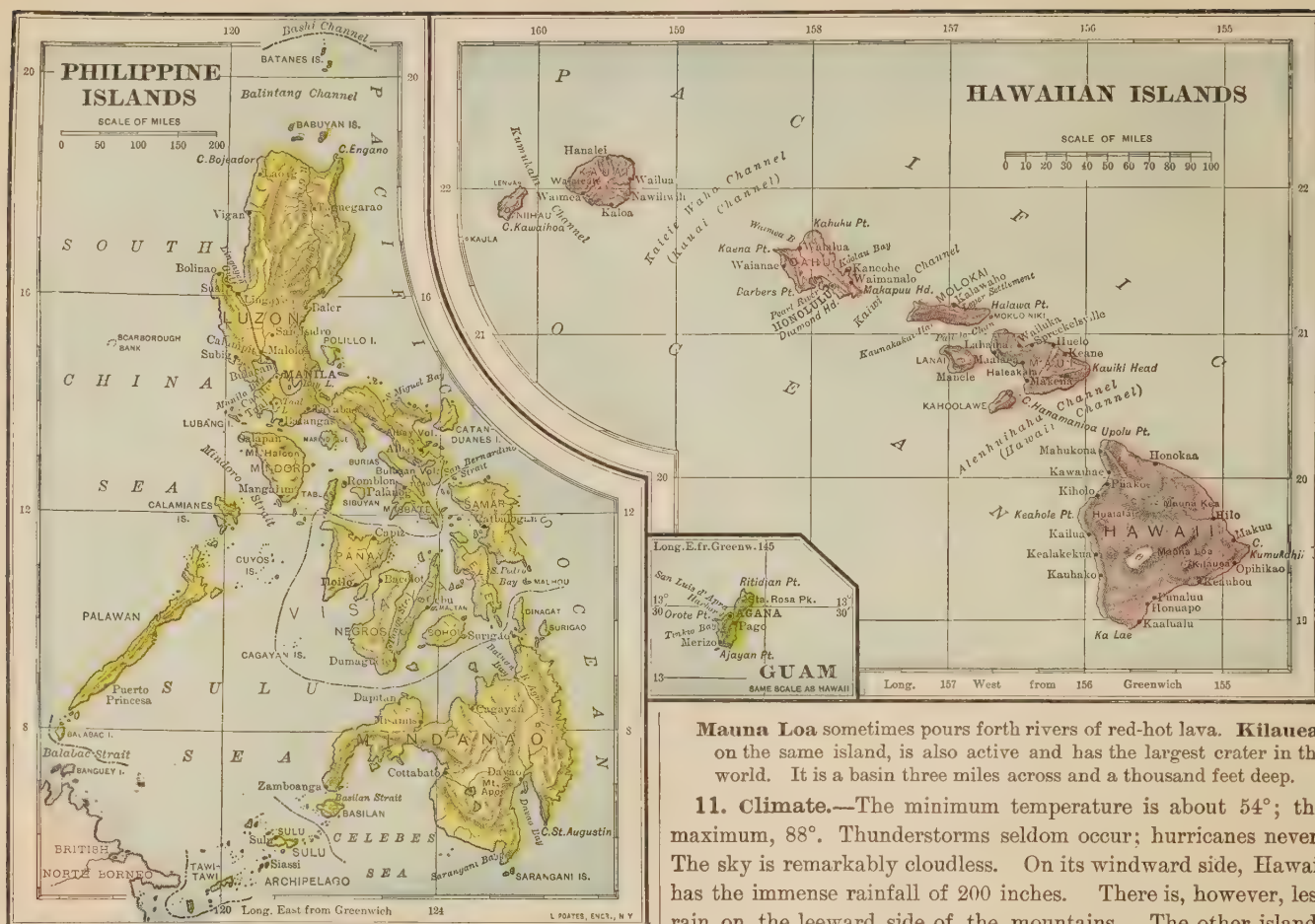
5. **Products**.—Tree ferns and cocoanut palms wave in the breeze; orange bloom scents the air; sugar-cane flourishes in the lowlands; the coffee-tree decks the hillsides, to the height of a thousand feet, with snow-white blossoms or scarlet berries. Bananas grow everywhere and form a staple article of food. The sugar, coffee, and tobacco plantations employ thousands of laborers and yield the chief exports of the island.

6. **Animals**.—Of the wild animals of **Porto Rico** none are beasts of prey. No poisonous snakes are found.

7. The **exports** are coffee, sugar, honey, tobacco, cocoanuts, and pineapples. The **imports** from the United States are chiefly



A street in Ponce, Porto Rico. The trees and shrubbery stand in the patio, or court, of a private residence.



rice, cotton goods, preserved meats, flour, and iron and steel goods.

8. The Population consists, in nearly equal proportions, of persons of Spanish origin and of the descendants of negro slaves. It numbers over 1,000,000. The language is Spanish. A system of schools, elementary, high, normal, and agricultural, has been established. The people are mostly Roman Catholics.

Cities.—**San Juan**, strongly fortified (pop. 48,716), and **Ponce** (pop. 35,027) are the largest cities.



Mauna Kea, a volcano on Hawaii, and the city and seaport of Hilo.

9. Hawaii comprises eight large islands and a number of mere rocky islets.

10. Origin.—The entire group has been thrown up by volcanic action; and on Hawaii, the largest of the islands, the volcanoes are still active.

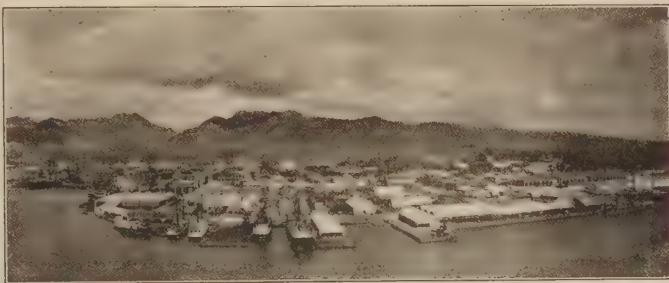
Mauna Loa sometimes pours forth rivers of red-hot lava. **Kilauea**, on the same island, is also active and has the largest crater in the world. It is a basin three miles across and a thousand feet deep.

11. Climate.—The minimum temperature is about 54°; the maximum, 88°. Thunderstorms seldom occur; hurricanes never. The sky is remarkably cloudless. On its windward side, Hawaii has the immense rainfall of 200 inches. There is, however, less rain on the leeward side of the mountains. The other islands have about 50 or 60.

12. Products.—The sugar cane, the pineapple, banana and coffee tree flourish.

Peculiar to these islands are the **candlenut** and the **taro**. The kernels of the candlenut are so oily that they are used like wax for candles. The taro supplies the natives with their principal food. It has a large starchy root, which is as important in Hawaii as the potato with us. These islands are capable of producing great variety of grains, vegetables, and fruits; but little attention is given to the cultivation of any plant except the sugar cane. Even **rice**, although it flourishes on the lowlands, is imported mainly from Japan. The **sugar crop** is large and is exported mainly to the United States, with which country trade is chiefly carried on. There are no





City and port of Honolulu.

other exports of importance. The leading imports are flour and grain, metal goods, cloth, oils, provisions, and various manufactures.

13. Animals.—The Hawaiian Islands are said to be free from snakes and frogs and toads. The only reptile reported is a small lizard.

14. Population.—The natives are brown, and belong to the Malay race. Like the other branches of this family, they are fond of liberty, brave, and intelligent. Taught by whites, they have become Christians.

There is a good system of public schools in the islands, and almost everybody can read and write. The people are abandoning their native tongue and using English.

Lepers.—Leprosy prevails to such an extent that on Molokai, one of the islands, there is a leper settlement set apart for the residence of the victims. These number 800.

The foreign population (Japanese, Chinese, Portuguese, Britons, and Americans) is about twice as large as the native.

Government.—The native government was formerly a monarchy, sometimes limited, sometimes absolute. Hawaii is now an organized territory of the United States.

Cities.—**Honolulu**, the capital and chief city, is located on a spacious harbor over a mile in length and admitting the largest vessels. It has a population of about 52,000 and a few small manufacturing industries. **Hilo**, about half the size of Honolulu, is on the island of Hawaii and is second in importance. It is on this island that Captain Cook, the discoverer of the group, was killed.

15. The Philippines are a group of the East India Islands. They are about 600 miles from the Asiatic continent. It is estimated that they number more than 1,000 in number.

16. Climate.—Their location in the torrid zone gives these islands a tropical climate. At Manila the average temperature for December and January, the coolest months, is 77°.

They are, moreover, within the **region** of the **monsoons**. From November to April the northeast trade wind blows, and gives to them, as it does to India, a comparatively cool and dry season. Beginning in April or May, the southwest monsoon blows for about five months. During the first three of these months it is intensely hot; in July, August, and September it is excessively wet. The rainfall at Manila is 75 inches. The hot, humid months of July, August, September, and October are also the months when **typhoons** occur. These are cyclonic storms like the West India hurricanes.

17. Origin.—The Philippines, like the Hawaiian Islands, are volcanic. Active **volcanoes** exist, and **earthquakes** occur.

18. Minerals and Soil.—Coal, iron, and copper are the most important minerals; but gold, silver, mercury, and sulphur have been found. The soil is remarkable for its fertility, and agriculture is the leading pursuit.

19. Products.—The forests contain ebony, teak, and rubber trees, and produce a great variety of gums, oils, and dyewoods. The **bamboo** and **cocoanut palm** furnish material for building, clothing, and food. The leading farm products are sugar cane, coffee, Manila hemp, tobacco, and rice.

Of these the **hemp** is the most important. It is a plant peculiar to the Philippines. It resembles the banana plant, and the fiber of the leaf is the best known material for cordage. It forms the chief **export**, coming largely to the United States. Raw sugar, copra, and tobacco are the next in importance. The **imports** from the United States are largely iron and steel goods, machinery, cotton goods, petroleum, leather goods, foods, wood products, chemicals, and vehicles.

20. Animals.—Here, as in Madagascar, the animals known as lemurs are found. The boa constrictor is occasionally met with. The water-buffalo is the Philippine beast of all work.

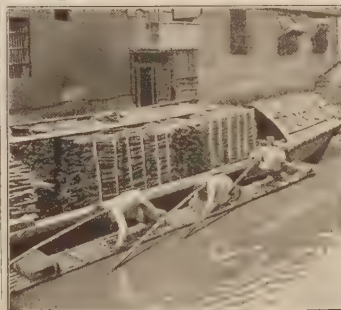
21. The Manufacturing Industries are the preparation of Manila hemp, and the making of cigars. The latter industry is carried on mainly at Manila, where it employs 10,000 women.

22. Population.—The natives are of the Malay and Negro races. Among the foreign population the **Spaniards** are a very important element. The **Chinese** outnumber the Spaniards. They are the bankers and merchants.

Excepting the one Mohammedan tribe called **Moros**, most of the natives are Roman Catholics. Many languages are spoken.

Cities.—**Manila**, on Luzon (pop. 220,000), is the capital. **Iloilo**, on Panay, and **Cebu**, on Cebu, are important ports.

23. Guam is an island of small area, but of value as a coaling and repairing station in the mid-Pacific. Docks and repair shops are to be erected by the government. The natives



Views on the Pasig river at Manila.

products, farm products, and animals. Exports and imports of Philippines. Manufacturing industries. Hemp. Manila. Guam.



are Christianized Malays. **Agaña** (pop. 6,000) is the chief town.

Review Topics.—The island regions. Porto Rico; surface, rainfall, products, animals, exports, and imports. Hawaiian Islands; people, schools, government. Honolulu. Hilo. The Philippines; location, number, climate, volcanoes, earthquakes, minerals, forest products, farm products, and animals. Exports and imports of Philippines. Manufacturing industries. Hemp. Manila. Guam.

XLIIB.

TRANSPORTATION AND TRAVEL IN THE UNITED STATES.

Advantages of Transportation Facilities.—Nothing adds more to the comfort and prosperity of a people than the power to travel quickly from place to place and to transport goods cheaply and easily. To accomplish these things a vast system of public highways and railroads traverse the country like a fine network, reaching to every city, town, village, and even to every dwelling house in the entire country. Many canals have been built to connect the waterways of the country, and to afford a safe passage around waterfalls and rapids. Our rivers and lakes are navigated by steamboats, barges, canal boats, and by every sort of craft carrying passengers and freight. Steamships ply along our coasts, carrying goods from port to port, and ocean liners cross the seas in every direction, carrying our goods to all parts of the world.



AN EXPRESS TRAIN RUNNING SIXTY MILES AN HOUR.

Advantages of Railroads.—The railroad, on account of the speed, regularity, and low rates at which freight is carried, has become the most important means of inland transportation. The old stage-coaches made good speed if they accomplished six or seven miles an hour. The early emigrants to California occupied weeks and months, wearily crossing the country in covered wagons, and often suffering from scarcity of food and water. A car on one of our trans-continental routes occupies less than a week in going from ocean to ocean; and in the palace cars one can be furnished with every luxury. But even when we do not travel we are benefited by railroads. All people are either producers or consumers, and railroads are of advantage to both.

How Producers are Benefited.—Productions of every description become more valuable when producers have convenient transportation. The grain growers of the Northwest, the cotton and tobacco planters of the South, the manufacturers of the Eastern States, and the mining population of the Rocky Mountain Region depend for their prosperity upon the facilities for transportation afforded them by railroads. We can understand how railroads benefit producers, if we consider the case of the farmer. It is of little use that a region is fertile, unless its products can be sent to market. Before we had railroads it sometimes happened that farmers a few hundred miles west of Chicago actually burned some of their corn as fuel because of the expense of getting it to market. Firewood was scarce, and the lack of transportation made fuel expensive; it also made the farmer's corn of little value. To burn a part of the crop was cheaper than to buy fuel. The early settlers of Kentucky were without railroads. The Alleghenies almost barred them from the markets of the Atlantic Slope. Consequently, they took their crops to New Orleans, rafting them down the Ohio and the Mississippi. At the end of their voyage they sold the crop and raft and made their way home as best they might. The journey down and back occupied more than six months. The crops of Kentucky now reach a market in a less number of days.

How Consumers are Benefited.—Not many years ago a severe famine prevailed in a certain section of India. Thousands of people perished from starvation. And yet there were other regions of India where there was abundance of food. But as this had to be transported chiefly in ox carts, only a little could be carried at once, and it took a long time to reach the famine-stricken region. If there had been railways connecting the district where the famine was with those places where food abounded, the starving people could very soon have been relieved; and therefore the British Government has urgently encouraged and aided the construction of such railways. At present there are in India about 27,000 miles of railway.

Railroad Traffic.—There were in the year 1830 only 23 miles of railroad in the United States. At present there are more than 200,000 miles, or more than one-third of the total mileage of the world. Those who live in towns through which important railroads pass can form some idea of the enormous amount of business done by them. Those going east carry cattle and grain; those from Missouri and Kentucky, hemp and tobacco; from Ohio and adjoining States they carry pork, lard, and flour. Some are coal trains, others are composed of refrigerator cars carrying fresh meat and fruit. Other cars support large iron tanks containing petroleum.

The railroads of the South transport a great deal of cotton to the ports of the Gulf or to those of the Atlantic seaboard. Many run northward freighted with oranges, strawberries and melons grown in the sunny South.

Trains going westward are not, as a rule, so heavily laden as those going eastward. They transport manufactures from the Eastern States, or imports from foreign countries.

Canals.—Before the days of railroads, the waterways of the country were the chief means of inland transportation. Good highways were few, and only to be found in the older and more settled parts of the country.

In the early part of the nineteenth century a great westward movement of population began. Thousands of people left their homes in the older colonies and crossed the Blue Ridge and Allegheny Mountains into the rich farming lands of the Ohio Valley. There were no bridges over the streams, the roads were bad, and it was very expensive to transport the tools, household goods, and supplies that were needed to build up homes in a new country.

The chief route followed by these western settlers was up the Hudson River to Albany; thence by the Mohawk and Oswego Rivers to Lake Ontario; across this lake and up the Niagara River and Lake Erie to a point opposite Chautauqua Lake; then overland and down the Allegheny River to Pittsburg. Over part of this route goods had to be carried in wagons and on the backs of horses, and the cost was \$120 per ton from Albany to Buffalo.

In 1793 an attempt to build a canal between Chesapeake Bay and the Delaware River was made and given up. It was twenty-five years later that the people of New York, led by Governor Dewitt Clinton, began the Erie Canal, which was to connect the Great Lakes with the Atlantic by way of the Hudson River. In these days of steam-drills and dynamite it would be an easy task to dig a ditch four feet deep and forty feet wide; but with the picks and shovels of those days it was eight years before the waters of Lake Erie were brought to New York harbor. The canal reduced the cost of carrying a ton of goods from Albany to Buffalo to \$14. For over fifty years it was the route by which the agricultural products of the West were brought to the seaboard for export to foreign countries. This developed the West by making a market for its products. It also built up the foreign commerce of New York City and made it the metropolis of America.

A FLOATING GRAIN ELEVATOR.
Transferring grain from a canal boat to an ocean steamer in New York City.

The success of the Erie Canal led to the building of many others, and before the end of the century the rivers and lakes of the country were connected by forty-three canals having a total length of 2,500 miles and costing \$200,000,000.

The Welland Canal connects Lakes Erie and Ontario and the Sault Ste. Marie, Lakes Huron and Erie. Why were these canals built? The Illinois and Michigan Ship and Drainage Canal connects Lake Michigan with the Mississippi River by way of the Chicago and Illinois Rivers. The Chicago River was deepened and made to flow into the Illinois instead of Lake Michigan, and to carry off the sewage of Chicago, which was polluting the water

of the lake. This canal connects the two greatest waterways of the country. Other leading canals are the Ohio Canal from Cleveland to Portsmouth; the Miami and Erie, from Cincinnati to Toledo; the Hudson and Champlain, from Troy to Whitehall; the Morris Canal, from Easton to Jersey City; the Delaware and Raritan, across New Jersey; and the Lehigh Coal and Navigation Company's Canal from Coalsport to Easton.

Steamboat and River Traffic.—Ten years after the invention of the steamboat in 1807, it had come into use on all the rivers of our country that were then routes of travel. The people of the West at once began to send their pork, flour, and lumber to New Orleans and to bring back hardware, tools, dry goods, sugar and coffee. As this was a cheaper route than the old routes from the eastern states it threatened the trade of New York and led to the building of the Erie Canal.



A MISSISSIPPI STEAMBOAT LANDING AT VICKSBURG.

The long gang-planks in the bow can be swung from side to side and raised or lowered for convenience in handling freight. Notice the coal barges that have come down the Ohio River.

You will notice that the mouth of nearly every large river is a harbor, and that an important city is built there. Also, that the head of navigation on a river is the seat of a manufacturing town. Between the port and manufacturing town there is usually much travel and trade, giving profitable employment to steamboats and other river craft. Smaller towns also are found along navigable rivers, which are connected with the larger cities by steamboats and barges carrying freight and passengers. Farmers bring their grain, fruit, and other produce to the nearest shipping point on the river and send it by barge or steamer to the large cities. On the return trip these vessels carry goods which merchants in the smaller towns have bought in the large cities—farm tools and machinery and manufactured goods of every sort.

Trolley Lines.—Many goods as well as passengers are now carried on the numerous electric, or trolley, lines which go out in all directions from our large cities. These roads have greatly aided the growth of small suburban towns, to which they now carry the mails, express packages, and the less bulky articles of freight. Many people employed in the cities are enabled by the electric roads to have homes in the country, where there is plenty of room, light, and air. Electric engines are also beginning to take the place of the steam locomotive on railroads which traverse crowded districts and tunnels, where steam and smoke interfere with the comfort and safety of the people.



A TROLLEY FREIGHT TRAIN.

This train runs between two cities in Iowa. Notice that the electric engine is alike on both ends and runs in either direction by merely reversing the motors.

Coasting and Lake Steamers.—The Atlantic Ocean was the chief means of communication among the States before railroads were built. Commerce especially was carried on by means of sailing vessels, as this was the only way of transporting heavy goods, as cotton, lumber, and naval stores. Our coasting trade is still the most important part of our ocean commerce. It is entirely conducted by American vessels.

The steamers engaged in this trade extend their voyages to Mexico, the West Indies, and South America. The lake trade ranks in importance with the coasting trade.

Steamship Lines.—In addition to our coasting steamship service there are many lines of ocean steamers that run between home and foreign ports.

About sixty years ago a vessel called the *Great Republic* used to sail between Liverpool and New York. This one ship could carry all the freight destined for Liverpool that accumulated in New York during a whole month. At present more than twenty steamers, each capable of carrying several times as much as the *Great Republic*, leave New York for the ports of Europe every week.



AN OCEAN GREYHOUND.

STANDARD TIME.

To obviate the inconvenience arising from differences in local time, what is known as "Standard Time" has been adopted in the United States. The country has been divided into four great time-belts, each about 15° wide. The local time of the central meridian of each belt is made the Standard Time for the entire belt.

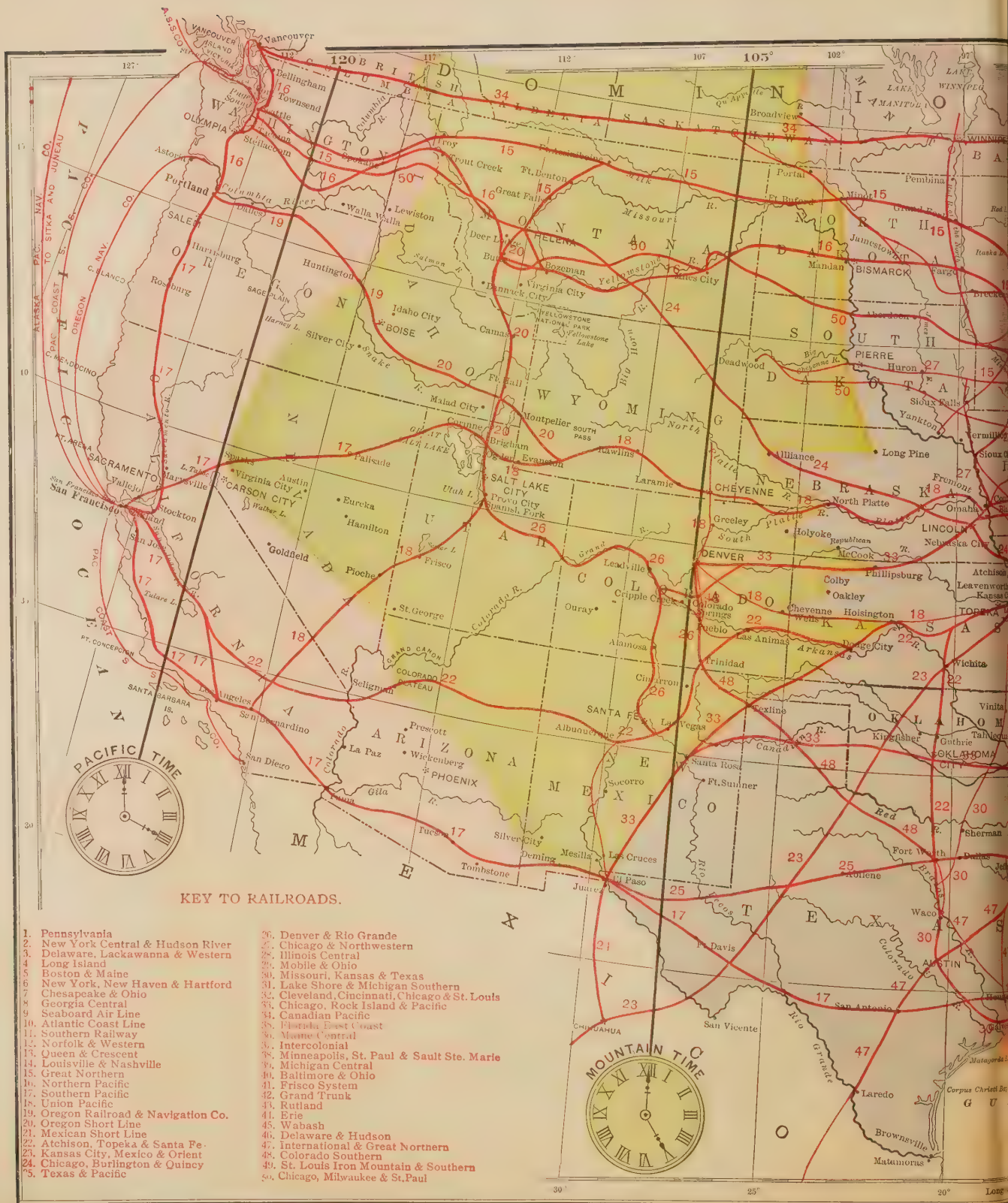
Time Belts.—The meridians determined upon are the 75th, 90th, 105th and 120th west from Greenwich; and the time-belts are known as the Eastern, Central, Mountain and Pacific. As the meridians by which the time of the belts is determined are just 15° apart, it is clear that the difference of time in the different belts will be marked by exact hours for the simple reason that the sun apparently passes over 15° of longitude every hour.

The map on the following page shows by different colors the different time-belts. Within each of these all places will have the same standard time. Thus, when it is solar noon on the 90th meridian, it will be 12 o'clock by Standard Time in all places throughout the Central belt. From the map we see that Eastern time, being determined by the 75th meridian, is just 5 hours slower than that of Greenwich, Central time 6 hours slower, and so on. Here and there deviations from the system are found expedient for the convenience of railways, and these are indicated on the map by the lines of color which project into the neighboring belt.

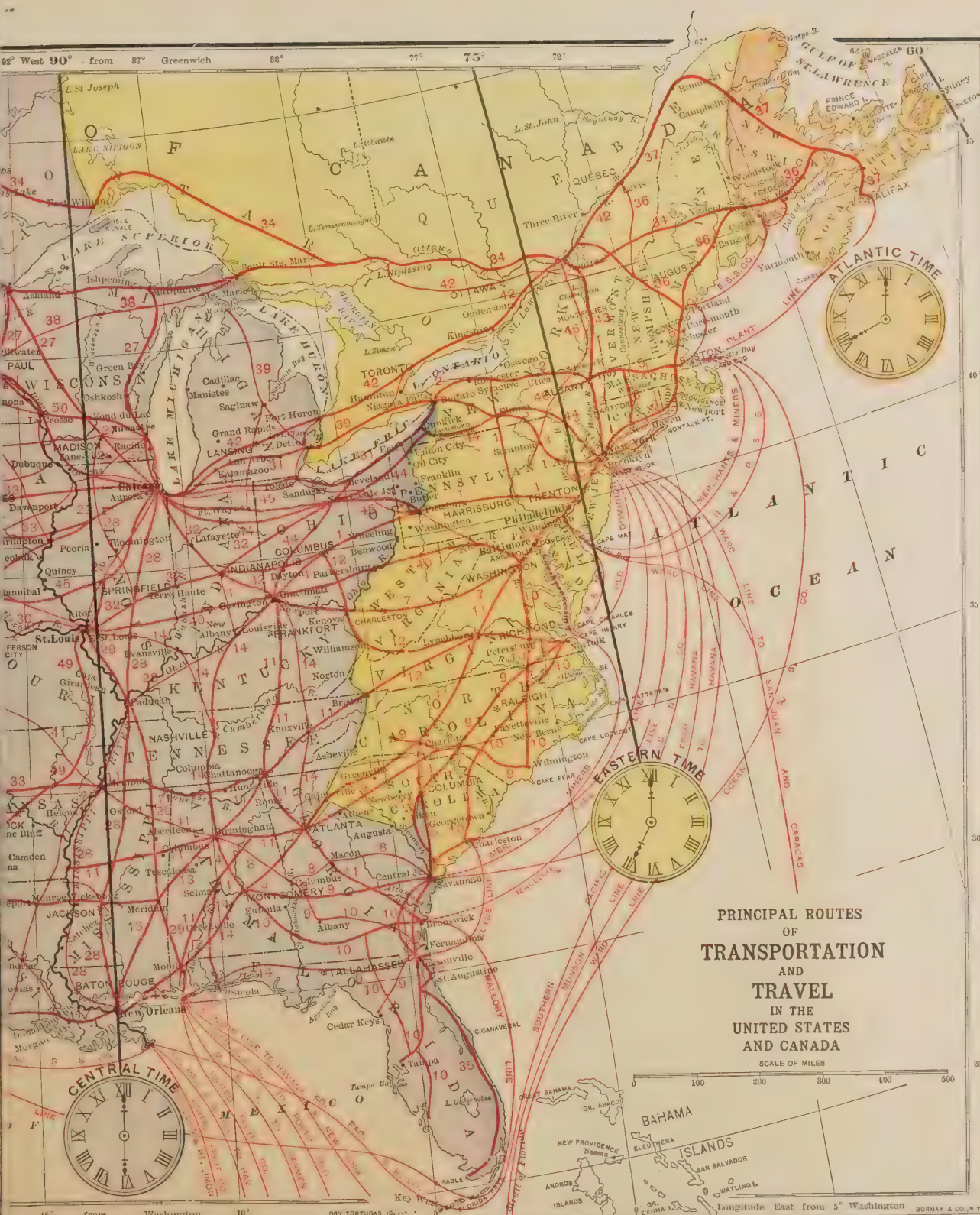
THE INTERNATIONAL DATE LINE.

Just as nations have arranged that certain belts of longitude shall have the same time, so it has been arranged that the whole world shall, as far as possible, have the same date and name for the day. Since the sunrise travels about the globe from east to west, the day really begins at a different time for all places east or west of each other. It has been agreed that each new day shall begin at midnight on the 180th meridian. This gives the whole world the same name for the day except places crossed by this "International Date Line," as it is called. Let us suppose that July 4 is just beginning at midnight on the Date Line. As the midnight moves westward around the earth each place will begin the new day. By the time the midnight reaches London and the day begins, it will be noon at the Date Line. When New Orleans begins the day it will be 6 P.M. at the Date Line. When the day begins at San Francisco it will be about 8 P.M. at the Line. And just as July 4 is closing east of the Date Line, July 5 is beginning west of it. Thus the whole world except those places crossed by the line have the same name and date, or number, for the day. The trade and voyage chart, near the end of the book, shows the line passing through the middle of the Pacific. Its direction is such that certain islands lying in its path shall have the same day as the nearest continent.

A navigator sailing east around the earth arriving at the line on Monday, would change his date to Sunday on crossing, and would thus have two Mondays the same week. But if sailing west and reaching the line on Sunday, he would change it to Monday on crossing, and would have no Sunday at all.

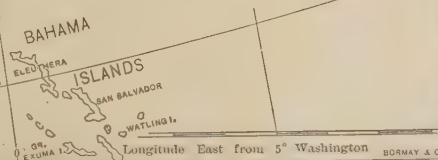


92° West 90° from 87° Greenwich 88° 77° 75° 72°



PRINCIPAL ROUTES
OF
TRANSPORTATION
AND
TRAVEL
IN THE
UNITED STATES
AND CANADA

SCALE OF MILES
100 200 300 400 500



15° from Washington 10° DRY TORTUGAS IS. Longitude East from 5° Washington BORMAY & CO., N.Y.

XLIV. DOMINION OF CANADA.

PROVINCES, ETC.	Area in Sqr. Miles.	Population.
Dominion of Canada	3,759,726	7,205,000
Ontario	369,257	2,523,000
Quebec	699,594	2,003,000
New Brunswick	27,992	352,000
Nova Scotia	21,429	492,000
Prince Edward Island	2,162	94,000
Manitoba	251,845	456,000
British Columbia	372,625	393,000
Saskatchewan	250,650	492,000
Alberta	253,540	375,000
Yukon Territory, etc.	1,480,092	25,000
Newfoundland	42,730	238,000
Labrador (estimate)	6,950	4,000

1. All of North America north of the United States, except Alaska and Greenland, is a part of the British Empire. Its area is about equal to that of the United States.

2. **Surface.**—The greater part of Canada lies in the northern slope of the Great Central Plain of the continent. West of this is the Rocky Mountain Plateau, and east are the basins of the



Scenes on the Gatineau River, Quebec, showing the hard rocks of the Laurentian Highland.

Height of Land, also called the Laurentian Highland. This is a worn-down mountain range, the oldest on the continent. This region contains many glacial lakes and short, rapid rivers. It abounds in fish and game and is a favorite summer resort and hunting ground.

3. The **Dominion of Canada** comprises the Provinces of Ontario, Quebec, New Brunswick, Nova Scotia, Manitoba, British Columbia, Prince Edward Island, Saskatchewan, and Alberta, the Territory of Yukon, and the Northwest Territories.

4. **Government.**—The Dominion is governed by a **Parliament** and **Governor-General**, somewhat as the United States is governed by a Congress and President.

The Governor of Canada is appointed by the British sovereign. Each province has as its **local government** a Lieutenant-Governor and a Legislature. The **Canadian Parliament** consists of two branches. The members of



Lumber piled to season near Ottawa. Lumbering is the chief industry along the Ottawa River, which is lined on both sides with forests. The largest mills are near Ottawa, which is famous as a lumber market.

Great Lakes and the St. Lawrence and of Hudson Bay. The watershed which divides these basins is the



On the Great Central Plain, Manitoba, showing an orchard in the foreground, a wheat field, and an avenue of trees.

The **Central Plain** or **Fertile Belt** embraces the millions of acres between Lakes Winnipeg and Athabasca and the Rocky Mountains. Upon the fertile belt the snow is light, and cattle find pasturage all winter. It is a good grazing country, and is also becoming one of the great wheat regions of the world.

6. The **Industries** of the people are mainly agriculture, lumbering, shipbuilding, fishing, mining, and commerce.

The **commerce** of the country is extensive, and is almost entirely carried on with England and the United States.

The exports of cattle, grain, cheese, and other food products are sent mostly to England. Lumber, metals, fish, and coal are sold to the United States, which furnishes about two-thirds of the imports, consisting of iron and steel goods, machinery, cotton, farm tools, and petroleum. Canada produces more cheese for export than any other country. It also ranks first in the value of its fisheries.

Trade Routes.—The Great Lakes, with the Welland Canal and the St. Lawrence, constitute the most important water route. The Canadian Pacific Railway is an important land route, which connects Halifax with Vancouver. At these ports steamship connections are made with European or Asiatic ports. The Grand Trunk system connects the cities along the Lakes and on the St. Lawrence with the Atlantic seaboard, and extends to the port of Prince Rupert on the Pacific. The Red River of the North and the Saskatchewan traverse the "fertile belt," and, with Lake Winnipeg, Nelson River, and Hudson Bay, furnish, during the summer, **continuous water routes** to the ocean.

MAP STUDIES.—What provinces of Canada border on the Atlantic? What great body of water in the interior? What great river flows into the Gulf of St. Lawrence? What mountain ranges in the west? What ridge in the southeast?

Ontario.—Natural boundaries on the south? Bay on the north? Lake on the west? River on the east? What city on the Ottawa? Where is Toronto? Kingston? Hamilton? What is the capital?

Quebec.—What river valley is a part of Quebec? What gulf on the east? Where is the Saguenay River? What and where is the capital? What city at the mouth of the Ottawa?

New Brunswick.—What peninsula to the southeast? What river in the west? Bay on the south? Gulf on the east? What is the capital?

Nova Scotia.—What is the form of Nova Scotia? What island to the northeast? To the north? Where is Cape Sable? What is the capital?

Prince Edward Island.—In what gulf is this province? Name the capital.

Manitoba.—What rivers and lakes in Manitoba? What is the capital?

British Columbia.—On what ocean does British Columbia border? What mountains form part of the eastern border? Name the capital. On what large island is it located? Where is Vancouver? Prince Rupert?

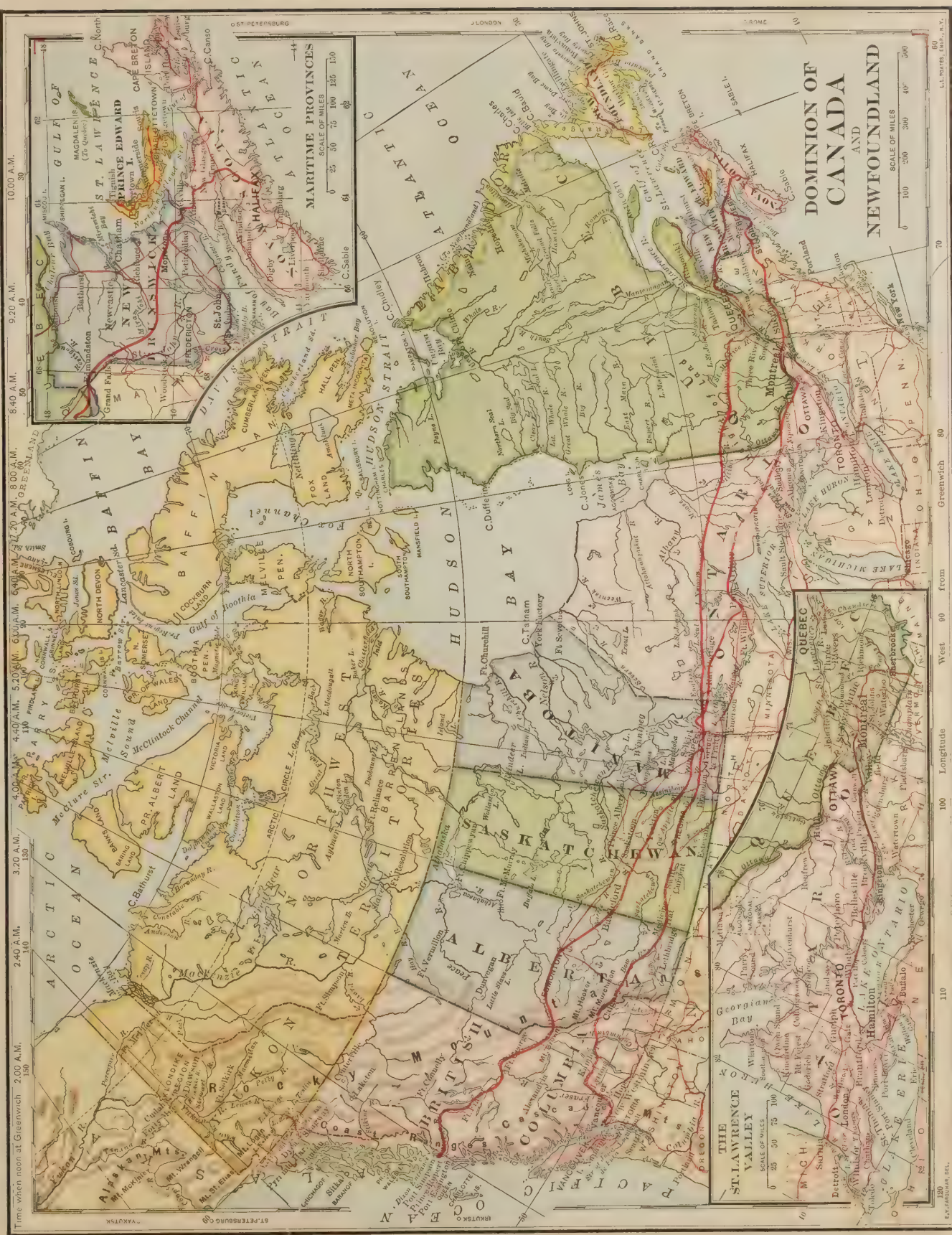
Saskatchewan.—What lakes in the north? Name and locate the capital.

Alberta.—The largest rivers? Three mountains? Name and locate the capital.

Newfoundland.—What strait separates Newfoundland from Labrador? Where is Cape Race? Where is Trinity Bay? What is the capital?

the lower House are elected by the people; those of the upper are appointed by the Governor-General.

5. **Resources.**—The chief resources of Canada are her fisheries, her forests, her productive lands in the basin of the St. Lawrence and in the **central plain**, and her vast mineral treasures.



DOMINION OF CANADA AND NEWFOUNDLAND

SCALE OF MILES
0 100 200 300 400

MARITIME PROVINCES
SCALE OF MILES
0 25 50 75 100 125 150

THE
ST. LAWRENCE
VALLEY
SCALE OF MILES
0 25 50 75 100

Time when noon at Greenwich 2.00 A.M. 3.20 A.M. 4.40 A.M. 6.00 A.M. 7.20 A.M. 8.40 A.M. 10.00 A.M.

110 100 Longitude West 90 from Greenwich 80 70
E. J. ARCANDEL DEL.

7. Ontario.—Ontario is bordered by four of the Great Lakes, and has a climate like that of Michigan.

Coal, iron, petroleum, copper, silver, nickel, and gold are among its **mineral resources**. Wheat and lumber are the principal productions.

The forests abound with the **sugar-maple**, and the making of sugar from it is an important branch of industry.

Ontario is the most populous, productive, and prosperous of the provinces.

It was **settled** chiefly by Scotch, English, and Americans, and English is the language generally spoken by the inhabitants.



Logging scenes near Ottawa.

Cities.—**Toronto**, the capital and chief city of the province, is the largest lake port in Canada. It has extensive manufactures of iron and machinery and a large wholesale trade.

Ottawa, the capital of the Dominion, contains the Parliament House, which is a magnificent building. It is the first city of Canada in the manufacture of lumber.

8. Quebec.—The Province of Quebec has a colder climate than Ontario. The westerly winds do not reach it until they have lost the warmth received by them in crossing the Lakes.

The inhabitants are mainly descendants of the early French settlers. A majority of them profess the Roman Catholic religion, and use the French language. The records of the Dominion are kept in both English and French.

The southern part of Quebec is fine farming region, producing tobacco, hemp, flax, potatoes, and hay. The western part has vast forests of pine, spruce, and hardwoods. Timber is floated down the rivers to Ottawa, where it is manufactured. Cheese, flour, maple-sugar, and useful articles for home consumption are the chief manufactures.

Cities.—**Quebec**, the capital of the Province of Quebec, is beautifully situated on and below a high bluff along the St. Lawrence.

The principal buildings and residences are in the upper city, while the lower part is the seat of commerce. The **lumber** export is large and many ships are built there.



View of Quebec from the south shore of the St. Lawrence. Notice the old citadel.



In 1759 a celebrated battle, which gave Canada to England, was fought between the French and English before the walls of Quebec. **General Wolfe** and the **Marquis of Montcalm**, the two opposing generals, both fell, each bravely leading his forces. During the Revolution, **Montgomery**, an American general, was killed in an attempt

to capture the citadel of Quebec.

The **scenery** around Quebec is enchanting. In the vicinity are the picturesque falls and the natural steps of Montmorenci.

Montreal is the largest city and manufacturing center in Canada. It has an extensive commerce, and exports a large amount of lumber, flour, wheat, cattle, and dairy products.

9. New Brunswick abounds in lime, red granite, and iron, and its forests yield large supplies of ship-timber. The people are chiefly employed in the lumber business and the sea fisheries.

Cities.—**Fredericton** is the capital. **St. John** is the largest town and chief port. Both cities are engaged in the manufacture of lumber.

10. Nova Scotia.—Nova Scotia is a peninsula. The island of Cape Breton belongs to it. The climate of Nova Scotia is healthful, and greatly tempered by the Gulf Stream.

The shores of Nova Scotia and New Brunswick are washed by the tides of the Bay of Fundy.

These tides attain the enormous height of fifty, and sometimes even sixty, feet above low-water mark. They are the highest in the world.

Coal, iron, gold, and gypsum abound, and are largely mined. The forest wealth is great, and shipbuilding is one of the industries.



Dominion Square, Montreal. Above it is Mount Royal, from which the city takes its name.

The fisheries rank next to those of Newfoundland. The inland regions are devoted to agriculture.

Halifax, the capital, is a flourishing town. It has a large trade, chiefly in fish, with the United States and the West Indies. Its manufactures are important.

The harbor of Halifax is unsurpassed by any in the world. It is the principal naval station of Great Britain on this side of the Atlantic.

11. Prince Edward Island lies in the Gulf of St. Lawrence.

It is the smallest, but the most thickly settled, of the provinces.



On the Great Central Plain in the valley of the Red River of the North.—Thresher and separator at work in the wheat fields near Winnipeg.

It has a milder climate than the neighboring mainland. The chief industries are agriculture, fishing, and shipbuilding.

Charlottetown is the capital.

12. Manitoba lies in the fertile belt, and is well adapted to the cultivation of wheat and other grains. The lakes and rivers abound in fish, and stock-raising and dairying are important industries.

The province was settled with wonderful rapidity. It is connected by railroads with the great commercial centers of Canada and the United States.

Winnipeg, the capital, has a large trade in wheat. It is the great receiving depot of the Hudson Bay Company's furs, and of the wheat of the Canadian Northwest. Its exports are wheat and flour.

13. British Columbia includes Vancouver Island. The province contains extensive forests. Minerals, timber, and fish are its chief sources of wealth. Vancouver Island abounds in coal; British Columbia has rich deposits of copper and gold.

The prevailing winds come from the sea, and the climate is mild.

The Canadian Pacific Railway, between Quebec and Vancouver, a distance of 3,050 miles, is a most important commercial route.

Cities.—Victoria, the capital, Esquimalt, a strongly fortified naval station, and Nanaimo, the great coal port of the Pacific coast, are on Vancouver Island. Vancouver, the largest city, is a center of the lumber trade, and has sugar refineries and iron works.

14. Saskatchewan and Alberta are similar in the amount



On the "Great Plains" in Alberta.—A cattle ranch near Calgary.

of their rainfall to Montana and North Dakota, but are somewhat colder.

Wheat and cattle raising are the most important industries. Calgary and Edmonton are centers of the cattle industries. Regina is the largest city in Saskatchewan.

The Territory of Yukon contains the Klondike region, one of the richest gold fields of the world. Dawson is the capital.

The vast unorganized region north of the provinces consists of both forests and treeless wastes. The forests are the home of many fur-bearing animals.



The Klondike region.—The Yukon river and Dawson.

Review Topics.—What is the surface of Canada? What does the Dominion comprise? How is it governed? The Parliament. Resources. Fertile belt. Principal industries. Commerce. Trade routes. Climate of Ontario. Minerals. Productions. Rank. Inhabitants. What is said of Toronto? Ottawa? Climate of Quebec. Inhabitants. What of Quebec? Montreal? Products? New Brunswick? Occupations. The capital. What is Nova Scotia in form? The tides of Fundy? Climate? Resources? Halifax? What of Prince Edward Island? Capital? Manitoba? The capital? What does British Columbia include? Its resources. Climate. Capital. Saskatchewan and Alberta. Industries. Yukon.



View of the city of Vancouver.

XLV. NEWFOUNDLAND AND DANISH AMERICA.

1. Newfoundland is free from the extremes of heat and cold experienced in Canada. It is rich in grazing lands, forests, and iron and copper mines, but above all in its cod and seal fisheries.

St. John's is the capital. In this city entire acres of ground are covered with "flakes" or frames that are shingled over with codfish, split in two, and spread out to dry; and in the harbor ships from all parts of the world may be seen taking in cargoes of fish.

The Grand Banks lie to the eastward of this island. They are elevated plateaus rising from the bottom of the ocean. In area they are about twice as large as the State of New York. The depth of the water upon them varies from one hundred to six hundred feet.

These banks are one of the treasures of the ocean. They are the largest and most valuable fishing-grounds in the world. In the spring and summer of every year immense shoals of cod, mackerel, and other fish resort to them, and are taken by the fishermen in great numbers.

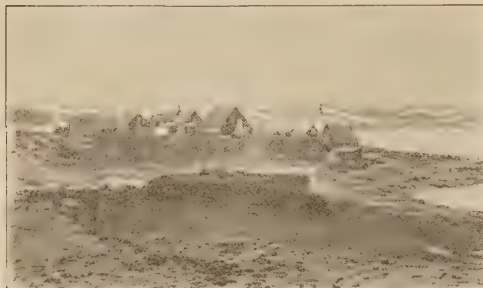
The Atlantic Telegraph Cables, between Valentia in Ireland, and Heart's Content, in Newfoundland, lie partly upon these Banks. Off the shores of Newfoundland the cold current which comes down through Davis Strait meets the warm waters of the Gulf Stream. It chills the vapor that rises from these waters, and thus produces the dense fogs which prevail in this region, and make navigation dangerous.

2. Labrador is a cold and inhospitable country.

Although in the latitude of some of the fairest parts of Great Britain, it

has a climate too severe to ripen even the hardest grains; **potatoes** and a few other **vegetables** sometimes do well. The coast is resorted to in the early spring and summer by fishermen, who catch large numbers of **seal** and **codfish**. The population of northern Labrador consists mainly of **Eskimos**.

3. Danish America comprises Greenland and Iceland. (See



Upernavik, from a photograph taken at midnight during the Arctic summer.

map, p. 29.) **Iceland** has its own constitution and legislature.

Greenland.—Of Greenland little is known except the western and southern coasts; but

Peary's explorations have proved this land to be the largest island in the world. The interior is one immense glacier and snow falls throughout the year except during a few weeks in summer.

The **trees** are not more than six feet high. A few **grasses** grow, and **buttercups** and **dandelions** are found. Some **vegetables** are occasionally raised, but the hardest cereals have failed.

The **population** consists of about 12,000 **Eskimos** and 200 to 300 **Danes** and other **Europeans**.

The skins of **seals**, **reindeer**, and other animals, with **eiderdown**, **whale oil**, **whalebone**, and **fish**, are exported.

Upernavik, in latitude 73°, is the most northerly abode of man.

Iceland is remarkable for its volcanoes and geysers.

Mount Hecla is the most noted volcano. The Great Geyser sends up a stream of water 100 feet high.

The **vegetation** of Iceland is not so dwarfed and scanty as that of Greenland, but there are no trees.



The "Kite," Capt. Peary's ship, in an ice-pack.

The warm waters of the **Gulf Stream** temper the climate. **Grain** will not ripen, but **vegetables** are raised, and enough **grass** grows to sustain cattle and sheep. **Wool**, **oil**, and **feathers** are exported. **Sea-fowl**, including the **eider-duck**, abound.

The **population** is about 85,000. The people are fond of literature, and have made valuable contributions to the history of America, which it appears was visited by an **Icelander** 500 years before **Columbus**. **Reykjavik** (*rik'yah-vik*), the chief town, is a small hamlet, but the seat of a college.

4. The Arctic Regions of North America have been the scene of many explorations during the last four centuries. Among the explorers may be mentioned **Hudson**, **Parry**, **Ross**, **Franklin**, **McClure**, **Hall**, **Nares**, **Nordenskiöld**, **Greely**, **Peary**, and **Amundsen**.

It was formerly supposed that vessels could sail through **Baffin Bay**, pass westward into **Bering Strait**, enter the **Pacific**, and then cross to **China** and the **East Indies**. This course was called the **North-**

west Passage. In 1854 **Capt. McClure** and his men crossed from **Bering Strait** to **Baffin Bay**, but long before they reached the latter they were forced to abandon their vessel. The journey occupied more than three winters. In 1905 **Capt. Amundsen** made the passage in a ship from **Baffin Bay** to **Mackenzie Bay**. The **Northwest Passage** is useless for purposes of commerce.

The climate of the Arctic regions is intensely cold. It is frequently 50° below 0°. **Glaciers** fill the valleys of Greenland, and slide down into the water. Large masses, sometimes miles in length and hundreds of feet high, break off and float away. They are called **icebergs**. They are carried by currents into the **Atlantic Ocean**, where vessels often meet and sometimes run against them.

During the six months of the **Arctic night** the aurora often brightens the sunless sky with its brilliant streamers of red, green, and yellow light.

On the **Arctic shores** scarcely anything grows but **mosses** and **lichens**.



A hut and a kayak, or native canoe.

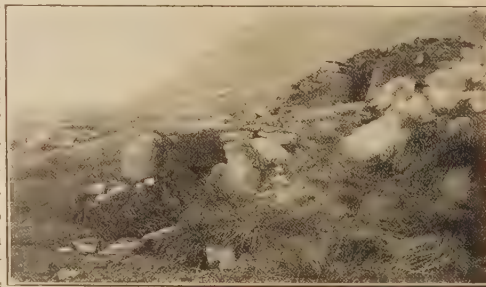
The **native inhabitants** of these regions are called **Eskimos**. They are stunted in body and ignorant in mind. Their lives are spent in hunting, eating, and keeping themselves warm. They kill great numbers of **seals** and **walruses**. The flesh of these animals serves for food, their skins for clothing, and their fat for fuel. The **Eskimos** make many things of bone

which we make of wood, iron or other metals.

Few **land animals** can exist in these desolate regions. The most important are the **Eskimo dog** and the **polar bear**. The dog is used by the **Eskimos** to draw their sledges over the snow and ice. The **seals** and **walruses** live partly on shore and partly in the water. In the Arctic seas one species of **whale** makes his home.

That Greenland is an island was first determined by **Lieut. Peary**. The pictures on this page were made from photographs taken by a member of his exploring party.

They were taken about midnight in the latter part of June. Later on, **Peary** attempted several times to reach the **North Pole**. Many heroic explorers had lost their



Stone huts or igloos.

lives in similar attempts. After a desperate struggle with Arctic dangers and difficulties he succeeded in reaching the pole, April 21, 1908. For this great achievement honors were bestowed on him by every civilized country on the globe, and Congress raised him to the rank of rear-admiral.

Review Topics.—What is said of **Newfoundland**? **St. John's**? **The Grand Banks**. **Area**. **Value**. **Fish**. **Fogs**. **Labrador**. **Products**. **Fisheries**. **Population**. **Danish America**. **Greenland**. **Vegetation**. **Population**. **Exports**. **Towns**. **Iceland**. Its **vegetation**. **Animals**. **Fish**. **Population**. **Chief town**. **Arctic regions**. **Northwest Passage**. **Climate**. **Icebergs**. **Aurora**. **Vegetation**. **Inhabitants**. **Animals**.

XLVI. MEXICO.

1. **Mexico** lies south of the United States, and between the Gulf of Mexico and the Pacific Ocean.

2. **Surface.**—The greater part of the country is an immense



The harbor of Vera Cruz, the seaport of the City of Mexico, and the castle of San Juan de Ulloa. The low coast may be seen on the right.

table-land supported by two ranges of lofty mountains, with a belt of lowland on both coasts.

The **lowland** varies in breadth from a few miles to one hundred or more.

The **table-land** rises precipitously from the lowland, and is from 5,000 to 8,000 feet above the sea. Upon it are **mountains** of great elevation. Many of their peaks are capped with perpetual snow. Some of them are **volcanoes**, as Orizaba and Popocatepetl (*smoking mountain*).

3. **Climate.**—Mexico, like all tropical countries, has a *dry* and a *rainy* season. The latter begins in June and lasts till November.

The **temperature** according to the

The **lowland region** is hot and unhealthy. The Mexicans call it *Tierra Caliente* (hot land).

Yellow fever is a common and fatal disease in this region.

The **table-land** is known as *Tierra Templada* (temperate land). Its climate is delightful.

The **houses** are built without chimneys, as the winters are not cold enough to make fires necessary. The heat in summer is not oppressive. Flowers, fruits, and vegetables grow all the year.



The city of Puebla. Notice the flat roofs and low houses without chimneys.

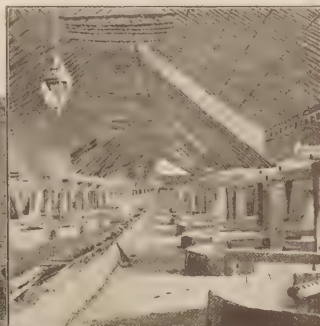


View on the Central Plateau, showing the village of Cholula and Popocatepetl.

4. **Mines.**—The table-land is rich in mines of gold and silver, copper, lead, and quicksilver.

It is a part of the great mountain system, consisting of the Rocky Mountains and the Andes, which so abounds in minerals that it may be called the metal-producing treasury of the Western Hemisphere. Mexico produces more silver than any other country, and ranks second in copper.

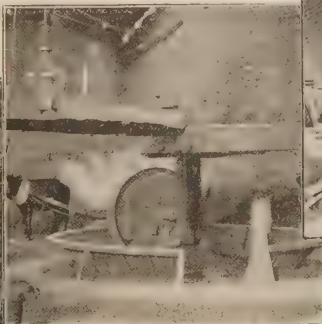
Sonora,
wah'wah
(*gwah-na-*
richest in



3. The powdered rock is placed in tanks containing water and mercury and mixed until the silver is dissolved by the mercury.



Silver mining in Mexico: 1. A picturesque silver mill at Guanajuato.

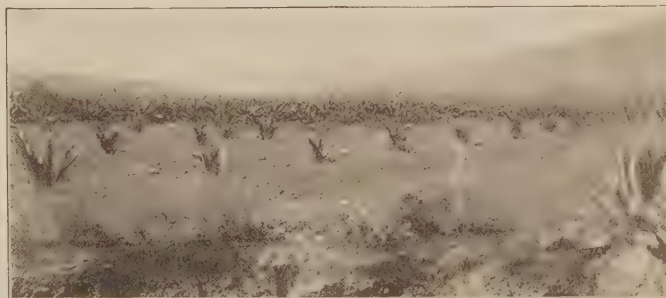


2. Rock containing silver is brought from the mine and crushed by the wheel as it is drawn around the circle.

varies
elevation.

The **cacao** of commerce is the seed of the cacao tree. A well-known preparation of cacao is **chocolate**. The ancient Mexicans called it *chocolatl*.

The **maguey** or **pulque** plant is peculiar to Mexico. Its leaves served the Aztecs in place of paper. The juice when fermented is the national beverage. A variety of the pulque plant yields a kind of hemp called, from the place of its export, **Sisal** (*se-sahl'*) **hemp**.

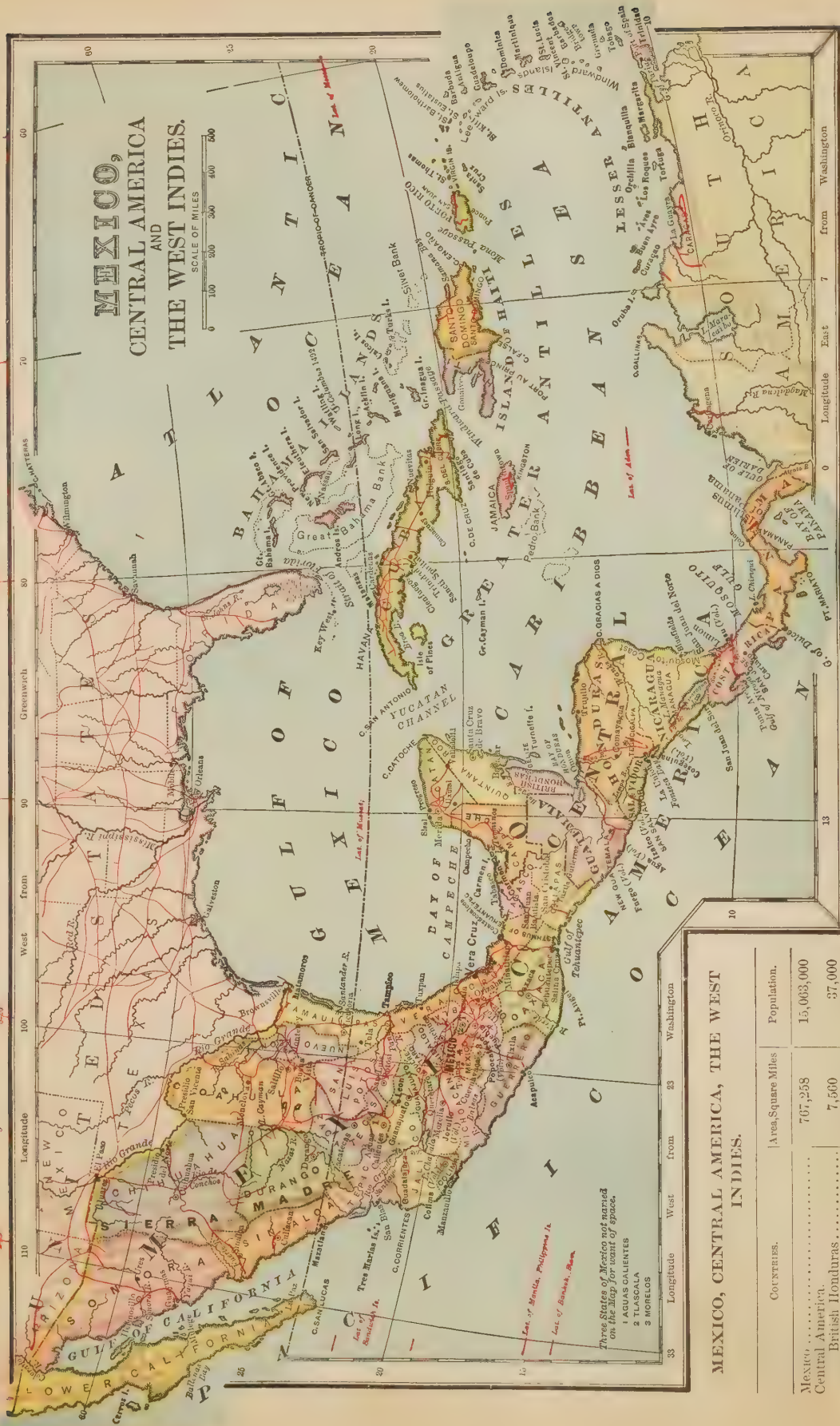


A field of pulque plants on a Mexican farm.

The **productions** of the **table-land** are cotton, coffee, tobacco, and grain.

The **cotton plant** produces for several years together.

In many districts three, and even four, crops of **Indian corn** are raised during the year. It is one of the great food plants of Mexico. The inhabitants of the lowland subsist largely upon the banana and plantain.



MEXICO, CENTRAL AMERICA, THE WEST INDIES.

COUNTRIES.	Area, Square Miles	Population.
Mexico.....	767,258	15,063,000
Central America.....		
British Honduras.....	7,560	37,000
Guatemala.....	43,641	1,842,000
Salvador.....	8,170	1,007,000
Honduras.....	44,274	544,000
Nicaragua.....	49,552	429,000
Costa Rica.....	18,689	335,000
Panama.....	53,302	228,000
Panama Canal Zone.....	474	127,000
West Indies.....	91,460	6,939,000

MAP STUDIES.—Describe the position of Mexico. Of Central America. The West Indies. What waters do these islands nearly inclose?

Mexico.—What country on the north? Southeast? What natural boundaries on the east and west? What peninsulas form parts of Mexico? What isthmus forms a part of

it? What river separates it from Texas? Where is the Gulf of California? Where is Cape San Lucas? What mountains traverse Mexico? What volcanoes in the country? What portions of Mexico are lowland? Where is the capital? What seaports on the Gulf of Mexico? On the Pacific? Where is Chihuahua? San Luis Potosí? Puebla?

Central America.—What are the political divisions of Central America? Which is the most northern? The most southern? Where is the Bay of Honduras? Where is Lake Nicaragua? How is it connected with the Atlantic? Where is the Mosquito Coast? What are the mountains of Central

America? Name some of the volcanoes. Give the capital of each State.

West Indies.—By what bodies of water are the West Indies surrounded? What are the grand divisions of these islands? Where are the Bahamas? What historic interest has Watling Island? Name the largest of the Greater Antilles. The Windward Islands are the southeasternmost of the Lesser Antilles. They are so called because they are on the quarter from which the trade wind constantly blows. Where is the capital of Cuba? Of Jamaica? Of Haiti? Santo Domingo? Porto Rico? Where is Santa Cruz? Curacao? Trinidad? What strait between Florida and the Bahamas?



A country scene in Mexico. The persons standing in front of the hut are farm laborers. They are descendants of old Indian races who were enslaved by the Spaniards, but are now free.

Silver, gold, copper, Sisal hemp, hides, and coffee are the chief exports.

Millions of horses, cattle, sheep, and goats are raised on the ranches of Mexico. Many of them are exported to the United States.

The foreign trade of Mexico is largely with this country. Vast amounts of **Sisal hemp** are brought to New Orleans, New York, and Mobile to be made into cordage and coarse canvas for wrapping cotton bales and making bags. **Copper** and **lead** ores are brought to the United States to be smelted. Hides, vanilla, and mahogany are other leading imports. **Mining machinery, timber, explosives,** and raw **cotton** are our principal exports to Mexico.

6. Race and Religion.—The Spaniards are the dominant race. Their language is the language of the country. They are Roman Catholics. All forms of religion are tolerated.

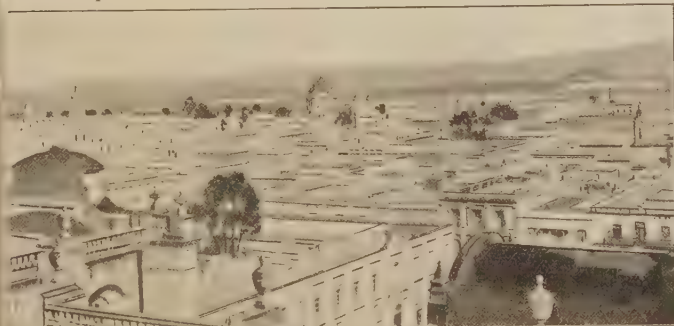


The inner court, or patio, of a home in the City of Mexico.

7. Government.—In 1821 Mexico became independent of Spain. It is a Federal Republic, comprising twenty-seven States, three Territories, and a Federal District.

8. Cities.—The capital, **Mexico**, is situated on a table-land about 7,500 feet above the sea and is surrounded by lofty mountains. It is a very ancient city and was the capital of the country when it was first discovered by Cortez. It has numerous factories producing cotton and other textiles, paper, pottery, and other wares.

The **manufactures** of Mexico are chiefly coarse cloths, leather, cigars, and other articles which are consumed at home. The finer qualities of goods are used only by the wealthier classes and are imported from Europe. **Leon, Morelia, Puebla, and Queretaro** are important



Bird's-eye view of the City of Mexico, showing the plateau; and in the distance the mountain rim that surrounds it.

centers of manufacture. The last-named city has the largest cotton industries in Mexico.

Guanajuato, Pachuca, Monterrey, and Puebla are centers of gold and silver mining. **Guadalajara** has manufactures of steel and metal goods.

San Luis Potosi and Durango are in rich grazing regions and have a large trade in cattle, leather, hides, and wool. **Merida** manufactures cordage, hammocks, and straw goods, and has the chief export trade in Sisal hemp through the port of **Progreso**. **Oaxaca** is the center of coffee, sugar, and chocolate industries. It is celebrated for cochineal, and its coffee is the finest produced in the Americas. **Aguascalientes** is in the midst of a fruit-growing district; near it are warm springs from which it takes its name.



A mill for drying and boiling coffee, which is then packed in sacks for shipment.

Tampico, Vera Cruz, Carmen, and Progreso are the chief seaports on the gulf coast; **Guaymas, Mazatlan, Manzanillo, and Acapulco**, on the Pacific. All of these ports are connected with the United States by steamship lines. There are also river connections between the ports and interior cities and the United States.

Ancient Cities.—More than two thousand years ago there were many flourishing cities in Mexico, chiefly in Yucatan. The ruins of these cities are still in existence. Uxmal, in Yucatan, covered seven square miles of ground. Their temples and palaces were built of

dressed stone adorned with statues and carvings. These cities were built by the Mayas, who were Indians. They migrated into Mexico from the north, and were probably driven by the



A street in the City of Mexico.

Aztecs into Yucatan, where their descendants still live. The Mayas of to-day are a more intellectual people than other Mexican Indians. Their features are more refined and more like the Caucasians. During the last century they took up arms against the government and tried to win their independence, but failed.

Review Topics.—How is Mexico situated? Lowlands. The table-land. Volcanoes. How are the seasons marked? Describe the climate of the lowland. The upland. Its climate. Mines? Name the richest provinces. The productions of the lowland. The pulque plant. The productions of the table-land. Exports. The dominant race. Religion. Form of government. What is said of the City of Mexico? Name other cities on the table-land. What are the seaports on the Gulf? On the Pacific? What is said of the ancient cities?

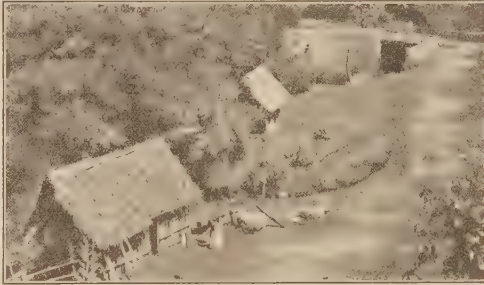


The city of Guadalupe.

XLVII. CENTRAL AMERICA.

1. Position.—Central America occupies the extreme southern portion of our continent, and lies between the Caribbean Sea and the Pacific Ocean.

It includes the six Republics of **Guatemala** (*gwah-te-mah'la*), **Salvador**, **Honduras**, **Nicaragua** (*nik-ar-ah'gwah*), **Costa Rica**, and **Panama**, and a British colony known as **British Honduras**.



A mountain road from the coast to the plateau in Central America.

The entire population of Central America is about equal to that of the State of Ohio.

2. In surface Central America resembles Mexico. It is situated in the belt of volcanoes that girdle the Pacific Ocean.

Coseguina (*ko-say-ghee'nah*), in Nicaragua, during its eruption in

1835, darkened the air by its ashes at places 50 miles distant.

3. Minerals.

—The mountains are richly stored with gold, silver, copper, mercury, and other minerals.

4. Climate.

The climate is

like that of Mexico; the soil is generous, and it is harvest time the entire year.

Yet these states are not prosperous, because their inhabitants are wanting in industry and skill, and political harmony.

5. Productions.—The principal productions are coffee, bananas, cacao, sugar, indigo, tobacco, and vanilla.

The forests are most luxuriant tropical growths and abound in mahogany, rosewood, and dyewoods.

The chief exports are coffee, bananas, gold, rubber, hides, and mahogany.

Our largest imports from

these states are coffee, bananas, and rubber. We sell them flour, meats, cloth, iron goods, and machinery.



The Panama Canal was begun by a French company, but the United States bought the rights of that company and is now carrying on the work. This view shows the place where the canal is being dug through a mountain pass.

[Copyright, 1904, by the Am. Stereoscopic Co.]

6. Race and Religions.—The states of Central America once belonged to Spain. The dominant race is Spanish. The language is Spanish; the religion is the Roman Catholic.

7. Cities.—The largest city is **New Guatemala**. The capitals of the other states are **San Salvador**, **Tegucigalpa**, **Managua**, **Panama**, and **San José**.

Colon, in Panama, is the eastern terminus of the canal; **Port Limon**, in Costa Rica, is connected by railroad with San José, and ships bananas.

Review Topics.—What part of the continent does Central America occupy? Name the states. Describe the surface. The mineral resources. Climate. Are these states prosperous? Productions. Exports. Race and religion. Capitals.

XLVIII. WEST INDIES.

1. Position and Surface.—These islands are like stepping-stones across the ocean from Florida to the Orinoco; they are in sight from one to another, almost all the way.

They separate the Caribbean Sea and Gulf of Mexico from the Atlantic.

They keep out the tidal wave, and make both sea and gulf nearly tideless.

All of these islands are mountainous except the Bahamas, which are low, coral islands.

2. Area.—The area of the whole group taken together is about twice that of the State of New York.



Basse-Terre, on the island of St. Kitts.

3. Divisions.—These islands form three divisions: the **Bahamas**, **Greater Antilles**, and **Lesser Antilles**.

The **Greater Antilles** are Cuba, Haiti, Jamaica, and Porto Rico. The **Lesser Antilles** are the group lying in a semicircle between Porto Rico and the mouth of the Orinoco.

4. Government.

—Of these islands, only Cuba and Haiti are independent. Cuba is protected by the United States.

Porto Rico belongs to the United States (see p. 81); Martinique, St. Bartholomew, and Guadeloupe, to France; St. Thomas, San Juan, and Santa Cruz, to Denmark; Curaçao (*ku-ra-so'*) and St. Eustatius, to the Dutch; the Bahamas, Barbados, Jamaica, and most of the Lesser Antilles, to Great Britain.

5. The population is less than that of Pennsylvania. The inhabitants are mostly negroes or the descendants of Spanish settlers. The Spanish, English, and French languages are spoken.

6. Climate.

—The West Indies, with the exception of the Bahamas, are all in the Torrid Zone. They have a hot



Street scene in Pointe Pitre, on the island of Guadeloupe.

10.11.15



A sugar mill in Cuba.

climate, and during the summer months an abundant rainfall. No snow ever falls; but frost occurs sometimes on the highest mountains.

7. Productions.—The sugar crop is of more value than all others combined. Next in order are tobacco, tropical fruits, and coffee. The people depend largely for food upon the yam, the plantain, and the banana. Flour and meat are imported from the United States. Other imports from this country are coal, lumber, cotton goods, and iron and steel. The sugar crop of Cuba and the other islands is almost entirely sold to the United States. Tobacco, tropical fruits, coffee, and ginger are other exports.

8. Cuba is called the "Queen of the Antilles." It is 730 miles long, and averages 60 miles in width.

It ranks first in the world in the production of cane sugar. Its tobacco and cigars are the finest in the world. Its forests abound in valuable woods. Its mines yield copper and iron.

Havana, the great sugar and tobacco market. It is the largest city and chief port of the West Indies.

Matanzas, Santiago, Cienfuegos, and Cardenas are important seaports. At Santiago most of the fighting was done during the Spanish war in 1898. Here the Spanish fleet was totally destroyed. Camaguey is an important inland city.

9. Haiti consists of two Republics, **Santo Domingo** and **Haiti**.



Havana harbor.

This island is unsurpassed in agricultural and mineral resources, which as yet are undeveloped. It is inhabited chiefly by negroes and mulattoes, numbering about a million and a half.

Santo Domingo, the capital of the Republic of the same name, is the oldest European city in the New World. It was founded in 1504. **Port au Prince** is the capital of Haiti.

10. Jamaica is the third of the West Indies in size. **Kingston** is its capital.

The cultivation and export of **bananas** is a very large and profitable industry. A special line of steamers is employed in carrying the fruit to the United States.

11. St. Thomas derives its importance from its fine harbor. It is a free port, where vessels pay no harbor dues.

In consequence of this, the West India **mail-steamers** of England and France make it their rendezvous, where they meet the smaller steamers from neighboring ports, and exchange cargoes and passengers.

12. Barbados is the headquarters of English troops in the West Indies. Sugar is the staple product.

Santa Lucia is a highly fortified naval station of Great Britain.

13. Trinidad (Trinity) almost joins South America.

It is celebrated for a lake of pitch or asphalt, from which immense quantities while yet

are annually taken, there is no perceptible diminution of it. Asphalt is used to make the composition with which many sidewalks and streets are paved. Trinidad belongs to Great Britain.

14. The Bahama Islands are formed of coral rock. Sponges, green turtles, pineapples, cotton, and Sisal hemp are exported.



3. Shipping cigars.



2. A man employed to read to the cigar makers in the factories.



1. Selecting the tobacco.

Watling Island was the first land discovered by Columbus in 1492.

The **Turk's Islands**, which are among the Bahamas, export large quantities of salt. This is obtained from sea-water evaporated in "salt pans."

Nassau, the capital of the Bahamas, is a great resort for invalids.

15. The Bermudas, which consist of 360 coral isles, lie to the north of the West Indies. They belong to Great Britain. About 20 of them are inhabited. They are famed for their **lilies, onions, and potatoes**. Large quantities are exported.



At Nassau, the capital of the Bahamas.—Loading a steamship with bananas.

The houses are built of blocks of coral sawed into shape. These harden when exposed to the air.

Review Topics.—Location of the West Indies. Surface. Area. Divisions. Name the Greater Antilles. The Lesser. Political condition of the islands. Population. Language. Climate. Productions. Describe Cuba. Havana. Haiti. Jamaica. St. Thomas. Barbados. Trinidad. The Bahamas. The Bermudas.

SOUTH AMERICA.

XLIX. PHYSICAL FEATURES.

1. **South America** is triangular in shape. It lies partly in both the northern and the southern hemispheres; but by far the larger portion of it is in the southern.

2. **Surface.**—The surface of the continent is naturally divided into four regions: I. The **Andean Plateau**; II. The **Highland of Brazil**; III. The **Highland of Guiana**; IV. The **Great Central Plain**, which extends the entire length of the continent.



On the Andean Plateau.

MAP STUDIES.—What two oceans surround South America? What sea on the north? Great ocean current on the northeastern coast? What great current on the west coast? What is the shape of the continent? What directions have the Atlantic coasts of South America? What is the general direction of the Pacific coast? What bay and gulf on opposite sides of the Isthmus of Panama? What island forms the southern extremity of the continent? What group to the east? What islands off the northern coast? What island at the mouth of the Amazon? What strait between Tierra del Fuego and the mainland? What is the most northern point of the continent? Southern? Eastern? Western? What winds blow constantly within the Tropics? Which of these winds blows upon the coast between Cape St. Roque and Cape Frio? What part of the coast is rainless? What cape on the Brazilian coast near the Tropic of Capricorn? What desert on the western coast opposite this slope?

Surface.—Judging by the colors of the map, is most of South America high or low? Where is the most elevated portion? What mountains form it? Point out the Cumbre (*koom-bray*) Pass. (*The railroad from Buenos Aires to Valparaíso goes through this pass.*)

Where does the lowland chiefly lie? What two highlands in the eastern part of the continent? What great plateau in the western? What lies between these high regions? What three river basins does the Central Plain comprise? What name is given to the grassy plains in the valley of the Orinoco? To the forest plains of the Amazon? Where are the pampas?

Rivers and Lakes.—What great rivers drain South America? Among what mountains does the Amazon rise? Where is the Huallaga? The Ucayali (*oo-ka-yá-lé*)? The Madeira? Tapajos? Tocantins? In what general direction do they all flow? In what direction does the Amazon flow? How many mouths has it? In what direction does the Orinoco flow? The Paraguay? Where are the three largest branches of the La Plata? By what rivers could you pass from the Orinoco to the Amazon? What lake near the northern coast? On the Bolivian Plateau?

Climate.—In what zone is all of South America north of Cape Frio and the Desert of Atacama? Through what river-valley does the equator pass? What kind of climate, then, is found in most of South America? In the most southern portion?

3. **Andean Plateau.**—The Andes skirt the shores of the Pacific all the way from Patagonia to Panama.

They consist of parallel ranges called **cordilleras**, of which the two most important are known as the cordillera of the Coast, and the cordillera of the Interior.

Between these are elevated plateaus, the highest of which is the **Plateau of Bolivia**.

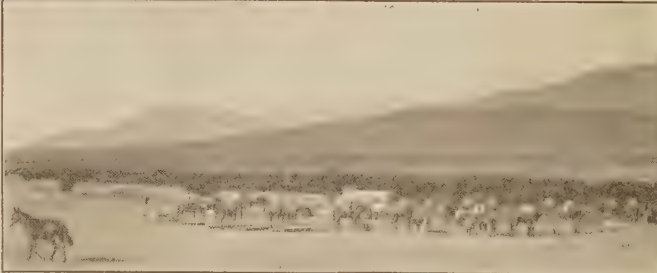
All the way from the Strait of Magellan to the Isthmus of Panama, there is, arranged along the top of the Andes like a line of sentinels, a succession of snow-capped **volcanoes**, many of them higher than the highest peak in North America. Some of them reach the height of about 25,000 feet.

4. **The Highland of Brazil** extends from the La Plata northward, nearly to the Amazon. It is traversed by parallel ranges of mountains, some of which are from 5,000 to 8,000 feet high.

5. **The Highland of Guiana** rises abruptly from the plain between the Orinoco and the Amazon.

6. **The Great Central Plain** consists of the valleys of the Orinoco, the Amazon, and the La Plata.

The elevations which separate the headwaters of these streams are so low that the **three valleys** may be considered as forming **one great plain**. Hence, with trifling exceptions, all the rain that falls on the continent finds its way back to the sea through the Amazon, the La Plata, and the Orinoco.



The Great Central Plain. View on the pampas of Argentina, with the Andes mountains in the distance.



On the Brazilian Highland. This is an old plateau worn down like the New England plateau. The train of pack mules shows how merchandise is carried into more inaccessible parts of the Brazilian Highland and its products carried to the nearest railroad or to the coast.

Productions.—What minerals are found among the Andes? Where is the diamond region of South America? On what part of the coast is nitrate found? Where is guano found? (*Guano is used as a fertilizer.*)

Name some of the vegetable productions of the Valley of the Amazon. Where do you find cinchona bark? Wheat? What are some of the vegetable products of the Brazilian Highland? Where do you find the manioc? Where is India rubber found? What valuable cabinet woods are found in the Amazon Valley?

Animals.—What animals abound on the Pampas? Where is the condor found? The armadillo? The sloth? For what shell-fish is Guayaquil famed?

What curious fish in the Orinoco? What dangerous animal in the Amazon Valley? What birds and insects are found here? What sea-bird in the South Atlantic? What bird belongs to the southern extremity of the continent?



SOUTH AMERICA

PHYSICAL MAP

SCALE OF MILES
0 100 500 1000

Plains
Low land
High Plateau

Green
Dark green
Buff
Dark buff

Different portions of the Great Central Plain are called **Pampas**, **Selvas**, and **Llanos**.

Pampas.—The vast plains of the La Plata are known as Pampas. They resemble our prairies.

During the **wet season** they are clothed with a rich growth of tall grass, and clumps of thistles ten or fifteen feet high; but the long summer **droughts** destroy the vegetation, and these pampas become arid wastes.

Selvas.—The Selvas are densely wooded plains occupying a large part of the valley of the Amazon.

The **vegetation** here is of the most remarkable and luxuriant description. The **trees** are of gigantic growth and endless variety.

Air-plants and **climbing vines** of the most fantastic shapes, with leaves of extraordinary beauty, and the most brilliant and curious flowers, hang from the branches and festoon the forests.

Among the trees are the India rubber tree, the cow-tree, and palms in great variety; among them is the wax-palm, from which valuable wax is obtained.

The **Llanos** (*lyah'nōz*), or plains of the Orinoco, extend from the shores of the Caribbean Sea to the foot of the mountains. They are dotted here and there with clumps of trees.



The llanos. View in western Venezuela taken during the dry season, showing the Andes mountains in the distance.

In the **rainy season** a vast extent of these plains is overflowed, and becomes, like the borders of the Lower Nile, a boundless sea. After the flood subsides, a most luxuriant growth of grass and flowers appears.

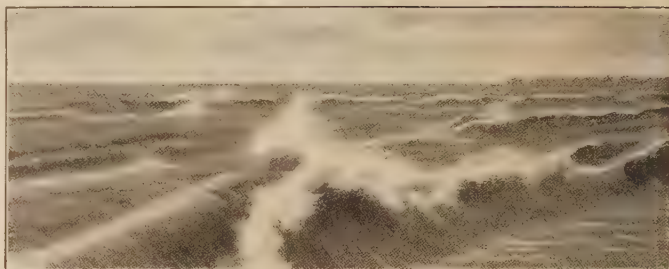
In the **dry season** the verdant plains become barren wastes.

COUNTRIES.	Area in Sqr. Miles.	Population.	COUNTRIES.	Area in Sqr. Miles.	Population.
The Guianas....	175,495	416,000	<i>Republics.</i>		
<i>Republics.</i>			Peru.....	438,996	4,586,000
Brazil.....	3,300,816	14,384,000	Bolivia.....	442,636	1,766,000
Venezuela.....	368,822	2,445,000	Chile.....	293,050	3,255,000
Colombia.....	465,714	3,917,000	Argentina.....	1,083,551	4,957,000
Ecuador.....	118,627	1,272,000	Paraguay.....	97,726	686,000
			Uruguay.....	68,996	1,039,000

MAP STUDIES.—What country occupies most of the eastern portion of South America? The southern? What countries are traversed by the Andes? Which border on the Caribbean Sea?

Brazil.—What two states do not touch Brazil? What great river drains a large part of Brazil? How near the Pacific is its source? Through how many degrees of longitude does it flow? What two rivers have their source near the town of Diamantino? What do you judge from the fact that one flows north and the other south? What river enters the Atlantic south of Cape St. Augustin? What portion of Brazil is mountainous? Where is Rio? Bahia? Pernambuco? Para? Maranhao?

Guiana.—To what nations do the Guianas belong? What are their capitals?



A bore coming up the mouth of the Amazon. It looks like a heavy surf rolling up on a sandy shore, but the breakers are caused by the meeting of the strong current and the tide.

7. Rivers.—The three great rivers, the **Amazon**, the **La Plata**, and the **Orinoco**, with their tributaries, include nearly all the large streams of South America, and constitute the grandest system of watercourses on the globe.

The **Amazon** is one of the longest and largest rivers in the world. It rises in Lake Lauricocha, in the Andes, and flows across the continent. Its length is upwards of 3,700 miles.

In some places, even far away from the sea, it is so **broad** that a vessel sailing upon it may be out of sight of land.

The Amazon drains a larger area and discharges more water into the ocean than any other river. Its **current** is perceived 200 miles out at sea; while the **tide** is felt 400 miles up its channel.

Sometimes the tide, instead of rising slowly, enters the mouth of the river as a perpendicular wall of water. This is called a **bore**. A mass of water 12 or 15 feet high rolls up the stream with a roar that is heard at the distance of 5 or 6 miles.

From the Rio Negro to the Ucayali the Amazon is known as the **Solimoes**, and above the Ucayali river as the **Marañon**.

The **Orinoco**, with its tributaries, flows through the northern portion of the Great Plain, and drains the mountain region of Guiana.

This river is connected with the Amazon by the **Cassiquiare** and **Negro** rivers, so that an Indian in his canoe may pass from the Amazon to the Orinoco.

The **La Plata** is the Mississippi of South America. Its course, unlike that of the Amazon, is not along parallels of latitude, but, like that of the Mississippi, across them.

Venezuela.—What countries east of Venezuela? South? West? Sea on the north? Name its great river. What lake in the northwest? Island off the mouths of the Orinoco? Capital? Where is Maracaibo?

Colombia.—What countries border on Colombia? What sea north? What cape forms the northern extremity? What isthmus northwest of Colombia? Where is Cartagena? Medellin? Barranquilla? What is the capital?

Ecuador.—What countries border on Ecuador? What circle crosses it? Name its volcanoes. Gulf off the coast. Capital. Seaport.

Peru.—Where is Peru? What cape and point on the coast? Islands off the coast? What rivers traverse Peru? Where is Lake Titicaca? Cuzco? Lima?

Bolivia.—What countries touch Bolivia? Name some of the rivers. Where is La Paz? Sucre? Mt. Sorata? Mt. Illimani?

Chile.—In what zones is Chile? On which side of the Andes? Where is Valparaiso? Santiago? Where is the island of San Juan Fernandez?

Argentina.—What river drains the northern part? Name its chief tributaries. Where is the Strait of Magellan? Tierra del Fuego? Cape Blanco? Buenos Aires? Rosario? Cordoba? Mendoza?

Paraguay.—What countries touch Paraguay? What is the capital?

Uruguay.—What countries touch Uruguay? What is the capital?



From north to south the La Plata, with its tributaries, the **Paraguay** and **Parana**, traverses 23 degrees of latitude. It drains the southern portion of the Great Plain.

On the western side of the Andes, all the way from Patagonia to Panama, the rivers are small in volume and short in course.

The mountains are too near the coast to allow the drainage to gather into large streams.

Review Topics.—Shape of South America. Divisions of surface. Arides. Plateau. Volcanoes. Highland of Brazil. Of Guiana. Great Central Plain. Pampas. Selvas. Llanos. The great rivers. The bore. Rivers on the west of the Andes.

L. CLIMATE, PRODUCTIONS, INHABITANTS.

1. Climate.—The larger part of South America lies within the tropics.

The **Temperature** of the lowlands is hot; that of the plateaus is variable, depending upon height above the sea-level.

Thus, a traveler ascending the Amazon would find in the valley of the Ucayali a **spring climate** all the year. Passing on into the valley of the Huallaga (*hwal-yah'gah*), a cooler climate still would await him. Along the **Upper Amazon**, he would find himself in a superb wheat, corn, cattle, hemp, and tobacco country, with bright skies and pleasant days at all seasons. Still higher he would enter, at the height of 16,000 feet, the region of **perpetual snow**.

South of the Tropic of Capricorn the temperature is moderate. The extreme southern portion of the continent is very cold.

Moisture.—The northeast and southeast **trade winds**, which come from the sea, are laden with moisture when they reach the land. As they ascend the **eastern slope** of the Andes, they get cooler and cooler, and as they cool they drop down their moisture in the shape of rain or snow. Crossing the snowy heights of the Cordilleras, they finally reach the western slopes completely robbed of moisture. Consequently, those **western slopes** are nearly rainless.

Every drop of water has been wrung from the winds while crossing the Andes, and we see it returning eastwardly to the sea in the shape of mountain streams and majestic watercourses.

The **eastern slopes** of the Andes, therefore, are clothed with trees and verdure. The **western slopes**, for nearly 2,000 miles, in Peru, and the northern part of Chile, are parched and barren.

South of latitude 30°, however, the prevailing winds are from the west, and there the conditions are reversed; there the western side is the rainy, and the eastern the dry side.

Had the Andes been on the east coast instead of the west, tropical South America would have been a desert.

2. Minerals.—South America is one of the richest mineral

regions of the globe. Gold and silver, precious stones, copper, and other metals abound.

3. Productions.—All the great agricultural productions of the world may be successfully cultivated in South America.

Cotton, sugar, tobacco, cacao, coffee, the banana, rice, the manioc—from whose root tapioca is prepared—spices, indigo, dyestuffs, and ornamental woods abound in this region.

The **great plains** are very productive of wheat and other grains and furnish pasturage for countless herds of cattle and horses.

4. The Animals are remarkable, and are very unlike those of the other continents. Among them are the long-tailed monkeys; armadillos; the rhea, a bird somewhat like the African ostrich; the electric eel, that shocks even horses to death; the peccary, that somewhat resembles a pig and is good to eat; the boa constrictor, the llama, and the alpaca.

5. Inhabitants.—The native inhabitants of South America are called Indians. They occupy a large part of the continent. Many of them are still in a savage state.

A great number of the present population are descended from European settlers, or are of mixed descent.

The **people of Brazil** are chiefly of Portuguese descent and speak the Portuguese language. In nearly all the other countries of South America the inhabitants are of Spanish origin and speak the Spanish language.

Review Topics.

—Climate of tropical South America. Changes of climate. Temperature of southern part of the continent. What winds bring rain to South America? How are these winds deprived of their moisture? What

is the effect upon the eastern slopes? The western? What conditions south of lat. 30°? South America as a mineral region. Chief products. Animals. Inhabitants.

LI. BRAZIL, GUIANAS, VENEZUELA.

1. Brazil.—Brazil is the largest and most important country of South America. It is larger than the United States without Alaska. Until 1889 it was an empire. It is now a republic, consisting of a number of states united like our own.

Physical Features.—The northern portion occupies the greater part of the valley of the Amazon, and includes the selvas. The central and southern portions are **table-land**.

Brazil has 30,000 miles of **inland navigation**. The Amazon drains most of the country. From its length and volume the Indians call it the "King of Rivers."

2. Productions.—Brazil is rich in mineral wealth, but little has been done to make use of it, though gold and diamond mining are carried on to a considerable extent.

Silver, lead, zinc, iron, and manganese are found, but there is little



A Chilean home in Santiago.



On a stock farm in Chile. The cowboys are assembled for orders. The general superintendent is in the center.

coal or petroleum. Monazite sand and manganese are exported. Two towns have been named from the diamond mines near them. Locate these.

The leading agricultural product is coffee, three-fourths of the world's supply being produced in Brazil. Cotton, sugar, tobacco, cocoa, and manioc are other leading products.

In the southern parts of the country there are important grazing and dairying industries conducted by prosperous German and Italian colonies. **Florianopolis** and **Blumenau** are growing towns in this section and export large quantities of dried beef, hides, tallow, and dairy products. Still larger quantities, however, are imported into other parts of the country from Argentina and Uruguay.

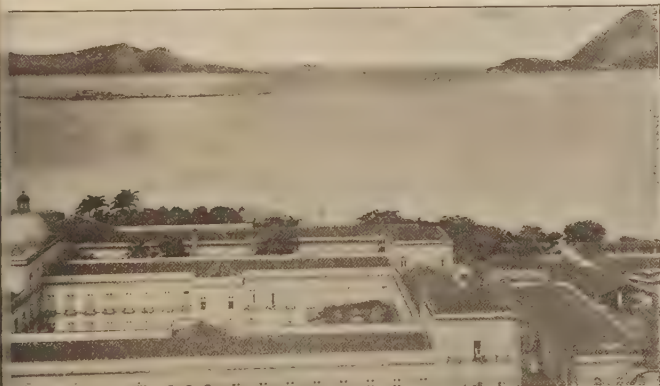
The forests of Brazil furnish our chief supplies of India rubber, besides large quantities of lumber, dyewoods, drugs, and Brazil nuts.



Brazil abounds in birds and insects of brilliant colors. The shells of beetles and feathers of birds are worked into various ornamental forms by the natives. This kind of ornamental work is noted for its elegance. It forms an important export and is sold in various parts of the world.

3. Pursuits.—The principal industry is agriculture; grazing, mining, and manufacturing are of less importance. There are many sugar factories and some refineries. There are many cotton mills in the cities and a few that manufacture silk and woolen goods.

Most manufactured goods used in the country are imported



A bird's-eye view of the harbor of Rio de Janeiro, showing the entrance and sugar loaf mountain, which is a well-known landmark. Notice the buildings along the water's edge.

from Great Britain, Germany, and the United States. Our largest imports from Brazil are coffee, rubber, and sugar. Our exports to that country consist principally of flour, kerosene, machinery, and hardware.

Steamers ply between Para, at the mouth of the Amazon, and Nauta, in Peru, a distance of 2,200 miles, and between Cuyabá and Buenos Aires. Brazil has more than 10,000 miles of railroad open for traffic, and more than 15,000 miles of telegraph lines. It is connected with Portugal and the United States by ocean telegraphs.

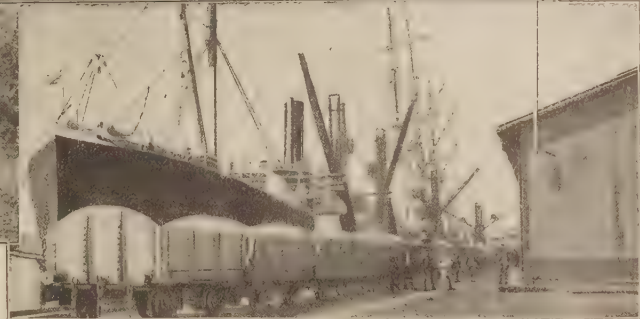
4. Discovery.—Brazil was accidentally discovered by Cabral, a Portuguese navigator, in the year 1500.

He was bound to India, and, much against his will, was drifted to the westward by the trade-wind, and reached the shores of South America near Cape St. Roque. Owing to this circumstance, Brazil became a Portuguese possession, and was colonized by Portugal.



5. People and Religion.

The inhabitants are of different races—whites, Indians, who for the most part are wholly uncivilized, and negroes. The language is Portuguese, the religion



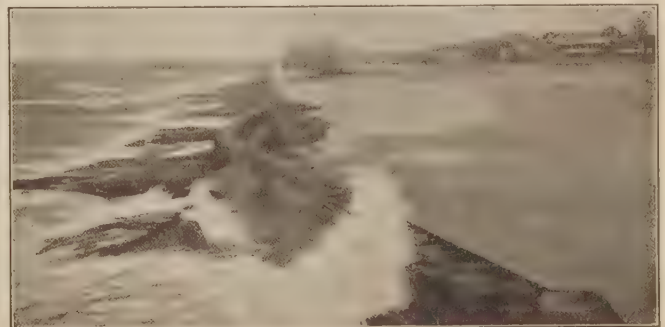
The coffee industry in Brazil. The ripe scarlet coffee berries are gathered from the trees; they are put into a machine which removes the seed. The seeds are spread out to dry in the sun, after which the coating is removed from the seed. Then they are sorted according to size and placed in sacks for shipment. The third view shows the ships at Santos being loaded with coffee from the car.

Roman Catholic. Other religious denominations are tolerated.

6. Cities.—**Rio de Janeiro** (Rio) is the capital and largest city of the Republic. It has an excellent harbor and is, next to **Santos**, the largest coffee market in the world.

Bahia, the second city, exports coffee and cocoa. **Pernambuco** is in the center of the sugar district and exports raw sugar, cotton, and hides. **Para** (Belem) is the leading port in the world for the shipment of rubber. **Sao Paulo** is in the heart of the coffee district, and is connected by railroad with Santos, its seaport, and the largest coffee market in the world.

Nitheroy, **Maranhao**, **Porto Alegre**, and **Rio Grande do Sul** have factories for the manufacture of woolen goods and carpets. **Pelotas** and **Porto Alegre** have a large export trade in agricultural and dairy products. **Campos** is second in the sugar trade.



The harbor of Pernambuco, showing the natural reef which has been extended by a sea wall so as to give the city a harbor.



View of the harbor of Cayenne. Notice that it is unprotected. In the foreground is the quay, where men and merchandise are landed.

7. The Guianas.—These three provinces belong respectively to the British, French, and Dutch. They are the only portions of South America now dependent upon any European power.

8. The scenery is wonderfully picturesque.

Long, flat-topped **mountains** rise abruptly from the plain, with precipitous sides like walls of masonry. Of these, **Mt. Roraima** is the most remarkable. It is 18 miles long and 7,500 feet high.

In this region the **rainfall** is very great. The north-east trade-wind brings to it copious volumes of moisture.

The rivers, dashing down the mountain sides, form beautiful cascades and waterfalls. The **Great Kaieteur** waterfall makes a clear leap of 822 feet. The **coast** country is low, flat, and swampy.

9. Life.—The air is filled with insects; the forests teem with wild dogs, tiger-cats, and armadillos; the tree tops are lively with songsters, and noisy with howling monkeys.

Exports.—Coffee, sugar, gold, and the products of the forests are the exports.

10. Towns.—The capitals are the largest towns. **Georgetown** is the capital of British Guiana, and **Paramaribo** the capital of Dutch Guiana. These are the centers of trade. **Cayenne** (whence we get cayenne pepper) is the capital of French Guiana.

11. Venezuela.—The Republic of Venezuela is about twice the size of Texas.

The early Spanish explorers, observing that the natives had built their houses on piles along the shores, called the country Venezuela, a word meaning "Little Venice."

12. Surface.—The northwest and southeast portions of Venezuela are mountainous. More than two-thirds of the country, however, consist of llanos (grassy plains), upon which millions of cattle, sheep, and other live stock feed.



A farmhouse, or hacienda, on the plateau of Venezuela.

13. Productions.—Among the mountains are rich deposits of gold and copper, which are extensively worked. Salt is

mined extensively, and is gathered from shallow lagoons on the shore.

The leading productions are gold, coffee, sugar, cacao, hides, and rubber.

The flora of Venezuela is wonderfully rich and varied. A species of mimosa, or sensitive plant, grows here, which spreads out its umbrella-shaped top until it attains the enormous proportions of several hundred feet in circumference. Orchids, with flowers of curious form and brilliant hue, cling to the branches of the forest trees. The "cow-tree" also is found here; the natives tap it and draw from it a milk-like beverage.

The chief exports are coffee, cacao, gold, and cattle products.

Several lines of steamers ply between Venezuela and the ports of Europe, and the United States. Nearly half the foreign trade is with this country, from which Venezuela buys cotton cloth, food products, kerosene, and lumber in exchange for coffee and asphalt.

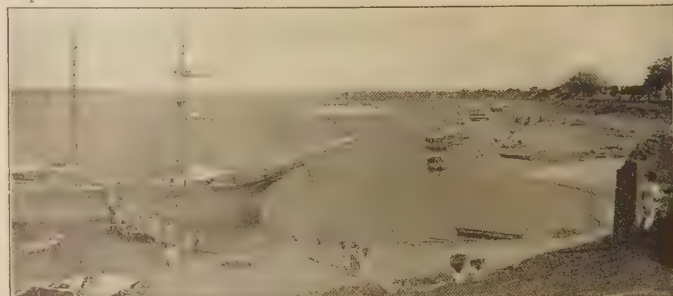
14. Cities.—Caracas, the capital, is subject to earthquakes. It was nearly destroyed by one in 1812.

It is 6 miles from its port, **La Guayra**, and about 3,000 feet above the sea. Immediately in the rear is the "Silla" (the saddle), a mountain with two peaks rising to the height of 8,600 feet. These peaks may be seen many miles out at sea, and are landmarks well-known to the navigator.

Valencia, Maracaibo, and Ciudad Bolivar, on the Orinoco, are centers of trade.

Venezuela contains several large lakes of asphalt, or mineral pitch. This substance is much used in paving city streets, and most of this output of asphalt goes to the United States.

Review Topics.—Rank and size of Brazil. Government. Surface. Inland navigation. Drainage. Mineral products. What is said of the coffee of Brazil? Other agricultural products. Sugar. What do the forests yield? For what are cattle chiefly raised? Principal pursuits. Commercial facilities. Discovery. People and religion. Rio. Para. Bahia. Pernambuco. To what powers do the Guianas belong? Their scenery. Waterfalls. The coast country. What is said of the animal life? Chief exports. Towns. What do we get from French Guiana? What is the size of Venezuela? Why so called? What of the surface? Great river. Mineral products. Agricultural. Exports. What is said of Caracas? Other cities.



Loading a schooner with fruit at Ciudad Bolivar on the Orinoco.

LII. THE ANDEAN STATES.

1. The Andean States are Colombia, Ecuador, Peru, Bolivia, and Chile. They comprise a region very remarkable for its volcanoes and earthquakes.

2. Chile lies altogether on the western slope of the Andes. It is for the most part in the South Temperate Zone.

3. Colombia, Ecuador, Peru, and Bolivia are within the Tropics, and are similar in surface, climate, and vegetation.

4. Physical Features.—Colombia, Ecuador, and Peru lie on both sides of the Andes. Each of them includes a narrow coast plain, a large area of mountains and table-lands, and a portion of the low forest plain at the eastern base of the mountains. Bolivia resembles its companion states, except that it has no seacoast.

5. Climate and Vegetation.—These states have every variety of climate and vegetation that can be found between the polar regions of eternal frost and the tropical regions of everlasting summer.

Here, seated at the foot of a mountain, and surrounded with the luscious fruits of the tropics, one may cast his eyes up toward the snow-capped peak above him, and take in at one view the whole range of the vegetable kingdom.

Noted among the products is **cinchona**, or Peruvian bark, the bark of the cinchona tree. It yields the valuable medicine, quinine. The tree is indigenous to the eastern slopes of the Andes, north of latitude 23° S., and to no other part of the world. It is successfully cultivated, however, in India and Java, Central America, and the West Indies.

6. The Mineral Resources of the Andean States are unsurpassed. They resemble those of our own Pacific Highland.

7. Trade.—The rugged heights of the Andes present a formidable barrier to communication and commerce between the countries on their opposite sides.

Two **railways**, however, already cross these mountains and connect Bolivia with the Pacific; another is being constructed from Chile into the Argentina; another leads from Callao to Pasco along the head-waters of the Amazon. But transportation is in general carried on by means of mules or llamas, and is exceedingly tedious and dangerous.

The **llama** is the camel of the New World. A million of them are employed as beasts of burden in Bolivia alone.

8. Colombia.—The Republic of Colombia is well situated for commerce, as it has long strips of coast and good harbors on both

the Caribbean Sea and the Pacific Ocean. In the llano region great herds of cattle are kept.

Colombia formerly included the Isthmus of Panama, but in 1903 Panama declared its independence, and set up a separate government of its own.

9. Productions.—Silver, gold, platinum, and precious stones abound. The emeralds are the purest in the world.

The agricultural productions of every climate may be raised here.

The chief exports are coffee, gold, silver, live-stock and hides, tobacco, and India rubber. Coffee, cocoanuts, hides, and bananas are sent to the United States in exchange for our flour, cloths, meats, coal, and kerosene.

The forests of the low plains contain many varieties of palms and bamboo. Higher up in the mountain regions grow the cinchona and the tree ferns.

10. Cities.—Bogotá, the capital, is situated about 9,000 feet above the sea level. It has two rainy seasons annually, and its climate all the year round is delightful.

Medellin, Cartagena, and Barranquilla are important commercial towns. Bucaramanga and Cucuta are large coffee centers. A considerable trade passes down the Magdalena.

11. Ecuador.—Ecuador is the Spanish for equator. This Republic is crossed by the Equator; hence its name.

It contains a remarkable group of volcanoes.

Among them is the dome-shaped Chimborazo, one of nature's most imposing structures, standing at the enormous elevation of four miles above the level of the sea. This mountain may be seen by moonlight at a distance of ninety miles.

Another of this wonderful array of burning mountains is the grand and terrific **Cotopaxi**. The noise of its eruptions is said to have been heard at the distance of six hundred miles.

The **condor**, the largest bird of flight in the world, dwells among the rugged heights of the Andes. He is fond of feeding upon the shell-fish found on the beach of Ecuador, and will leave his home, 100 miles distant, twice a day to secure his meals.

12. Productions.—Ecuador contains deposits of gold, of emeralds, quicksilver, iron, and copper and coal. Of agricultural products, the most important is cacao.

The principal exports are cacao, coffee, vegetable ivory, gold, Panama hats, rubber, and hides. The imports are cotton and woolen goods from Europe, and machinery, flour, lumber, and kerosene from the United States.

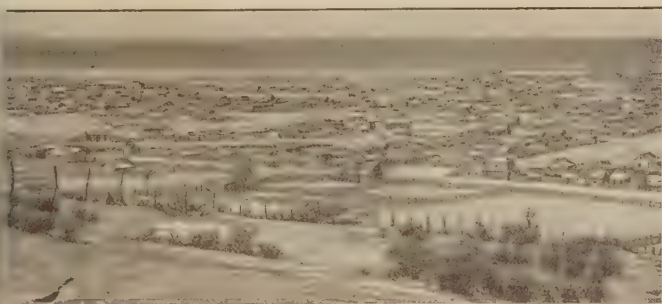
13. Cities.—Quito, the capital and largest city, is situated



Silver mine in Peru, showing sacks of silver ready for shipment.



Coal mines at Lota.



Farm site Arenas (sandy point), Chile, at the southern end of the Andes. The most southern town in the world.



Market in Quito, Ecuador.

The Galapagos, or Turtle Islands, so called from the gigantic tortoises found here, belong to Ecuador.

Review Topics.—Name the Andean States. Which lies entirely west of the Andes and mainly in the temperate zone? Which are within the Tropics? In what are these alike? Physical features. Climate and vegetation. What is said of the cinchona tree? The mineral resources. How is trade carried on across the Andes? The llama. How is Colombia situated? The Isthmus? The railway. Mineral products. Agricultural. Exports. Bogotá. Other towns. Why is Ecuador so called? Chimborazo. Cotopaxi. The condor. Mineral productions. Agricultural. Exports. Quito. What is its port? Galapagos Islands.

LIII. PERU, BOLIVIA, AND CHILE.

1. Peru.—Peru has been famed from the earliest times for the almost fabulous wealth of its mines.

Silver and gold, quicksilver, copper, lead, and iron abound. The silver mines of Pasco are among the most celebrated in the world.



Railroad on the western slope of the Andes in Peru, 13,000 feet above sea level, showing the barren regions, with Mt. Misti and Mt. Chambarri towering above it.

Many years ago silver was used in Peru as the baser metals are with us; tires of carriage-wheels, and the commonest household utensils were of solid silver. In the early days of the Republic it was not uncommon to see Indians sitting at dinner on the earth floor of their hut, and eating, without the aid of knife, fork, or spoon, out of a massive silver dish.

2. Rainless Region.—West of the Andes Peru is nearly rainless.

On the wharves of Callao bags of wheat may be seen lying there for months together in the open air, with no more protection from the weather in that rainless port than if it had been a pile of paving-stones.

The sea along this rainless coast is the most gentle part of the ocean. It is seldom ruffled by a storm. *Rainless shores* are washed by *stormless seas*.

Western Peru is supplied with water, both for drinking and for irrigating the fields, from the mountain streams formed by the melting snows of the Cordilleras. Cultivation depends almost entirely upon irrigation.

3. Productions.—This rainless country, wherever there is water, produces the most beautiful flowers and delicious fruits.

nearly two miles above the level of the sea.

No less than eleven peaks, all white with their snow-caps, are in full view from the plaza, or great public square of this city.

Guayaquil, the principal seaport, has extensive manufactures.

The cotton-plant, tobacco, and the sweet potato grow all the year, and the tobacco produces continuously. Medicinal plants, such as the coca shrub and the cinchona tree, and valuable dye woods, are found in the forests. Large quantities of rubber also are gathered and sent down the Amazon to Para.

The chief exports are silver ore, sugar, cotton, coffee, guano, and the wool of the alpaca. All these products except the first are exported to some extent to the United States in return for our machinery, lumber, flour, cars, and kerosene.

Peru is one of the leading South American States in the construction of railways and telegraphs.

Early Civilization.—When Europeans first visited South America, Peru was occupied by a highly civilized tribe of Indians. The remains of their great road from Quito to Cuzco, and thence along the plateau of the Andes into Chile, are still to be seen. This road was 1,500 miles long and 40 feet wide. In constructing it, ravines were crossed by suspension bridges, and galleries were cut through the rock. In Cuzco was the great temple of the sun, which, in its day, far surpassed in costliness of decoration any edifice in Europe.



A wire bridge over a mountain stream on the eastern slopes of the Andes in Peru.

4. Cities.—**Lima**, the capital, has a noble cathedral, a museum, and a national library. Its houses are built of sun-dried clay. Earthquakes have desolated it repeatedly. It has railways to Callao and other points.

Callao is the port of Lima.

Arequipa (*ar-ek'-pah*), the second important city, is noted for its manufacture of gold and silver tissue, and cottons and woollens. Like Lima, it has been laid in ruins several times by earthquakes.

The great volcano of Misti, a truncated cone, rises on the outskirts of the city to the height of nearly 20,000 feet.

Pasco, nearly 14,000 feet above the sea, is the highest city in the world.

5. Bolivia was named in honor of the South American "Liberator," Bolivar, to whom it owes its independence.

6. Surface.—This republic is very mountainous, and completely shut in from the sea. Western Bolivia contains the highest plateaus and ridges of the Andes. Lake Titicaca is partly in Bolivia. It is nearly 13,000 feet above the level of the sea. Here the pressure of the atmosphere is greatly diminished, and evaporation is so rapid that the water is taken up from the lake as fast as the rivers pour it in. The lake is navigated by steamers.

7. Climate.—East of the Andes the country is generally well watered and fertile, but dry on the west of them.



Street in Lima.



A square in La Paz and a drove of llamas loaded with merchandise.

8. Products.—Bolivia, like Peru, is rich in minerals. The mountains a-

contains the desert of Atacama (*ah-tah-cah'mah*). South of latitude 30° the rainfall is abundant. The prevailing westerly winds, coming from the Pacific, are laden with moisture which the Chilean Andes wring from them.

In Peru and northern Chile the western slopes of the Andes are **rainless** and **barren**. In central and southern Chile the western slopes of the Andes are very fertile, making Chile the granary of all that part of South America bordering on the Pacific Ocean. In the southern part are vast tracts of valuable forests, and lumbering is becoming a leading industry.

11. Productions.—Chile is a mineral region. Its copper and silver mines are profitably worked. Coal is extensively mined. The **nitrate** deposits of Iquique (*ē-kē'kay*) are its most valuable form of mineral wealth.

Nearly five hundred million tons of nitrate have been taken from the Chile fields and exported, largely to Europe. The nitrate mines are run almost entirely by British capital. In the last few years there have been established sugar refineries, sawmills, machine shops, and quite extensive cotton factories. Manufactured goods are, however, largely brought from Europe.

Chile produces the finest of wheat and the best of timber. The chief exports are nitrate, copper, silver, and wheat.

The United States imports from Chile nitrate, wool, copper, and lead. Our exports to Chile are cloth, kerosene, iron and steel goods, lumber, and farming tools. Chile's foreign trade is chiefly with England.



Lake Titicaca, and the straw boats used there.

bound in silver, copper, and tin.

One of the products of Bolivia and Peru is the plant called coca, which resembles tea.

The leaf is chewed with unslaked lime by the natives of a large part of South America, somewhat as the betel-nut is used in the East Indies. It enables those who use it to endure great fatigue for a short time.

The chief exports are silver, tin, rubber, bismuth, cinchona, and coca. On account of its inland situation, Bolivia has little foreign trade. Cottons and woolen goods, machinery, and hardware are imported by way of **Molendo** and **Antofagasta**.

9. Cities.—The most important cities are on the plateau. They have access to Pacific ports by means of railroads that run across the Andes and pass through Peru and Chile to the coast.

La Paz is the chief city. **Sucre** (*soo'kray*) is the capital, though the government usually meets at La Paz.

La Paz manufactures hats and woolens, and is the center of the coca and cinchona trade. Sucre has a university and a school of mines.

Cochabamba contains factories of woolen and cotton goods and glassware.

Potosi, more than 13,000 feet above the sea, is near the famous silver mines. In its best days, when the mines were worked, it numbered 130,000 inhabitants. At present it contains only about 12,000. The mines of Potosi have yielded silver to the amount of 600,000,000 dollars.

10. Chile.—Chile is a narrow strip of country lying on the western slope of the Andes, and extending to the sea.

The northern portion comes within the rainless region. It



Antofagasta, on the desert coast of Chile. Ships lie near the shore, and freight is carried to and from them on boats called lighters. Notice one filled with horses. The second cut shows how cattle are hoisted to the ships.

of the solitary residence of Alexander Selkirk for four years, is an island in the Pacific belonging to Chile.

The **Araucanian Indians** are found in the southern part of Chile. They are one of the most remarkable of uncivilized races. By their great courage they maintained their independence for centuries, but at length submitted to the Chilean Government.

13. Cities.—**Santiago** is the capital; it has electric lights, street cars, and is a progressive city.

The other important cities on the plateau are **Concepcion**, **Chillan**, and **Talca**. They are markets for grain and cattle. **Antofagasta** and **Iquique** ship nitrates.



A farm in southern Chile. Here the streams have cut down the mountains and made a wide, fertile valley. Compare with the narrow, barren valley in northern Chile, where there is no rain.

12. This republic is one of the most enterprising in South America. It has public schools, good roads, and railroads connecting the larger towns.

Juan Fernandez, the scene





Valparaíso. Notice the hills upon which the city is built, and the narrow plain along the waterfront. There is a quay at which ships discharge cargo. The harbor is so crowded that most of the ships lie at anchor, and freight and passengers go to them on lighters and small boats.

Valparaíso, the port of Santiago, and connected with it by railway, is the chief seaport of South America on the Pacific.

Review Topics.—For what is Peru noted? Climate. Farming. Agricultural productions. Exports. Rank in railways. Who were the ancient inhabitants? Describe their great highway. Temple. What is said of Lima? Callao? Arequipa and its volcano? Pasco? Why was Bolivia so named? How is it situated? Lake Titicaca. What is said of its elevations? Minerals? Coca. Exports. Where are the most important cities? How connected with the Pacific? What is said of La Paz? Sucre? Cochabamba? Potosí? How is Chile situated? What part is desert? What is said of the rainfall? What makes Chile the granary of South America? The mineral products. Agricultural. Exports. Public Education. What island belongs to Chile? Santiago. Valparaíso. The Araucanian Indians.

LIV. THE LA PLATA STATES.

1. The La Plata States include **Argentina, Paraguay, and Uruguay.** With the exception of Patagonia, which now forms a part of Argentina, they all lie in the valley of the Rio de la Plata.

Rivers.—The La Plata, with the Parana and Paraguay, forms a continuous water route for the commerce of this valley. Large steamers ascend far above Asunción, while smaller ones penetrate to Cuyaba, in the heart of Brazil.

The valley of the La Plata has one of the finest climates in the world, free from frost and remarkably healthful.

2. **Products.**—The greater part of this region is a fine agricultural and grazing country. It is one of the world's greatest wool producers and a leading section in the export of beef, mutton, and other animal products.

Its soil is adapted to the cultivation of wheat, corn, coffee, tobacco, sugar, rice, cacao, hemp, flax, indigo, and manioc.

Great numbers of cattle feed on the grassy pampas.

The **exports** of the La Plata States are chiefly hides, horns, tallow, mutton, wool, wheat, tobacco, and yerba maté (*mah'tay*).

Argentina imports textiles, clothing, pottery, glass, and machinery from Great Britain and Germany. From the United States she receives farming machinery, oil, lumber, twine, wire, railroad supplies, tools, and hardware. Next to animal products and wheat, flax-seed and sugar are the most important exports. We buy of Argentina raw wool, hides, goatskins, and the bones, horns, and hoofs of the cattle slaughtered. What use do we make of these things?

3. **The Inhabitants** are Indians or descendants of European races. They are Roman Catholic in religion.

The herdsmen, who live on the pampas and are called **gauchos**, are most expert horsemen. They chase the ostrich, the wild horse, and the bullock, and throw the bola, a kind of lasso, with such precision that they can catch the animal by the foot while it is lifted in flight.

4. **Argentina** is the largest state in South America, except Brazil. It is a republic. It contains the pampas.



Ships loading with beef at one of the wharves on the La Plata river at Buenos Aires.

About 30,000,000 cattle and 75,000,000 sheep are pastured on the pampas. The public lands are sold in large tracts to the ranchmen, who divide them into sections which they fence with wire. A few men can thus take care of large herds. The ranch owners are mostly Englishmen and Scotchmen. The best cows are kept for dairy purposes. The best beef cattle are shipped alive to Europe. Fat sheep and lambs are also

sent in the same way. But the live animals exported are equal to only one-sixteenth of the frozen and dried beef. The largest refrigerating plant for meat in the world is at Buenos Aires. A million carcasses of beef and three million of sheep are frozen and exported annually.

The **population** is largely foreign. The liberal policy adopted toward settlers attracts many immigrants from Southern Europe.

Argentina has more railways than any other South American country. A tunnel through the Andes gives railway connection between Buenos Aires and Valparaíso. Argentina provides excellent educational advantages.

5. **Cities.**—**Buenos Aires** (*bo'nus a'riz*), the capital, is also the chief city of South America and seaport of the La Plata basin.

Numerous lines of steamers connect it with foreign ports.

Cordoba, La Plata, and Rosario are important towns. **Tucuman** stands in the garden spot of the Republic.



Mayo Street, one of the principal business thoroughfares of Buenos Aires, the metropolis of the continent.



A holiday in Asuncion.

Patagonia and Tierra del Fuego comprise the southernmost parts of South America. These regions belong to Chile and Argentina. The climate of Southern Patagonia is very severe. The inhabitants of Patagonia are remarkable for their height. Many of them are nearly seven feet high. They are mostly nomads, and devote themselves either to herding cattle and sheep or to hunting the ostrich and guanaco.

The **Falkland Islands** are a British Colony. The coasts teem with albatross and penguin, and the waters with fish. The islands are treeless, but "tussac grass," five or six feet high and resembling miniature palm-trees, fringes their borders. Sweet-scented wild flowers abound.

The population is about 2,000. Stock-raising is the chief industry. Wool, hides, skins, and leather are sent to the mother country in exchange for manufactured goods.

6. Paraguay.—Paraguay is a small and unimportant republic. It is without any seacoast; but the Parana and the Paraguay rivers furnish communication with the ocean. **Asuncion** is the capital. The climate and soil are adapted to both tropical and temperate productions. Maize, manioc, tobacco, and oranges

are raised extensively. Yerba, tobacco, and cattle products are exported. Our exports to Paraguay are chiefly hardware, kerosene, and canvas; our imports, hides and vegetable extracts.

Yerba (*the vegetable*) is the dried leaf of a kind of holly. From it maté, or Paraguay tea, is made, which is a favorite beverage in South America.

7. Uruguay.—Uruguay is the smallest of the South American republics, but one of the most progressive. Public education is obligatory. The country is almost entirely a grazing region. The wool product is very large and forms the chief export.

Montevideo, the capital, has an extensive commerce in cattle products. France, Belgium, and England are the largest customers. The La Plata at Montevideo is more than 60 miles wide.



Bird's-eye view of Montevideo, showing the harbor and the ships with which it is always crowded.

Review Topics.—The La Plata States. Navigation of La Plata. Climate. Products. Exports. The inhabitants. Argentina. The pampas. The ranches. In what does this state take the lead? Buenos Aires. Other important places. The Patagonians. The Falkland Islands. Industries. Paraguay. Maté. The capital. Uruguay. Capital.

GENERAL REVIEW.

Name the three natural divisions of North America. Define each. What are the great rivers? Describe vegetation. Commercial advantages. Name political divisions.

Give the natural divisions of the United States. Products and advantages of the Atlantic Slope. Of the Mississippi Valley. Of Pacific High-land and Slope. How many States and Territories are there? What are the departments of the Government of the United States? Describe each. Define State government. What are the leading agricultural productions of the United States? What of its domestic commerce? Transportation routes? Foreign commerce? Exports? Imports?

Name the New England States, with capitals. Resources. Industries. In what does Maine excel? New Hampshire? Vermont? Massachusetts? Rhode Island? Connecticut?

Name the Middle Atlantic States, with capitals. In what does this section surpass every other portion of the country? In what does New York rank first among the States? For what is New Jersey noted? Why? Of what three articles is Pennsylvania the largest producer? For what is Delaware famed? Maryland? Chesapeake Bay? What does the District of Columbia contain? What are the chief productions of Virginia? Of West Virginia?

Name the Southern States. Capitals. What are the natural divisions of Tennessee? Products of each? What are the agricultural productions of South Carolina? Its most valuable mineral? For what is Georgia conspicuous? Florida? Alabama and Mississippi? Louisiana? Arkansas? In what does Texas surpass all other States?

Name the Central States. The capitals. Chief cities. What portion of the country do these States occupy? What is their most striking feature? What may this region be called? For what is Kentucky noted? Chief industries of Ohio? Indiana? In what does Illinois rank high

among the States? What are the leading products of Michigan? Of Wisconsin? Minnesota? North and South Dakota? Missouri? Iowa? Kansas? Nebraska?

What are the resources of the Rocky Mountain Region? Chief industry of the Plateau Region? Name mineral and agricultural products of California. What are the resources and industries of Oregon? Of Washington? Alaska?

What are the resources of Canada? Industries? Products of Ontario? What can you say of the inhabitants of Quebec? Industries of New Brunswick? Exports of Nova Scotia? Manitoba? British Columbia? Newfoundland? For what is Labrador visited? What is exported from Greenland and Iceland?

Describe the climate and productions of Mexico. Of Central America. What are the exports of the West Indies? Of Trinidad? Turk's Islands? The Bermudas?

Name the four natural divisions of South America. Describe the pampas. Selvas. Llanos. The Amazon. La Plata. Orinoco. What can you say of the temperature? Moisture? Effect of Andes? Minerals? Productions? Inhabitants?

What is the great product of Brazil? Other exports? What is said of rainfall in the Guianas? Why was Venezuela so called? Name productions.

Name the Andean States. Describe surface. What part of the United States do they resemble in mineral wealth? How is transportation carried on? For what is Ecuador noted? What are its productions and exports? Peru? What portion of Peru is rainless? What are the productions? Exports of Bolivia? What does Chile produce? Name the La Plata States. Describe their great industries. What of climate? Exports? With what countries do they trade?

EUROPE.

LV. PHYSICAL FEATURES.

1. Excepting Australia, Europe is the **smallest** of the continents, and lies chiefly in the Temperate Zone. It is deeply indented by arms of the sea, and has therefore great facilities for commerce.

The **peninsulas** of Greece, Italy, and Spain and Portugal project from its southern edge, and the Scandinavian peninsula from the northern.

Europe and Asia really form one great body of land which is sometimes called **Eurasia**.

2. **Surface.**—Europe consists of a mountain region in the south and a great central plain, bordered on the east and northwest by mountains. The northwestern coast is slowly sinking. The North and Baltic Seas and the English channel were once part of the central plain.

Mountain Ranges.—The principal ranges are The Pyrenees, The Alps, The Balkans, The Carpathians, and The Caucasus, which extend across Southern Europe eastward into Asia. The low

border ranges on the northwest extend through the Scandinavian Peninsula and through Great Britain.

The **Alps** are the highest mountains wholly in Europe. They are celebrated for their snow-clad peaks, beautiful lakes, and glaciers.

The loftiest peaks are about 15,000 feet above the sea-level, and are crowned with perpetual snow.

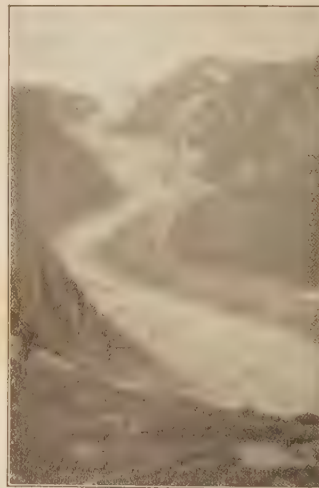
In the high valleys of these mountains are immense masses of ice, called **glaciers**, which are formed from the snow. They are always moving slowly down the mountains, and, melting at the lower end, become the sources of rivers. The most famous is the **Mer de**

Glace (*sea of ice*). These and other mountains of southern Europe are still young, and have not been worn down like the older mountains of northwestern Europe.

The **Great Plain**, or lowland, extends from the Ural Mountains westward to the Bay of Biscay, and from the Arctic Ocean southward to the Black Sea.

Russia constitutes a large portion of it. That part of it which borders on the North Sea and the Bay of Biscay may be designated the **Atlantic Plain**.

3. **Rivers.**—The rivers of Europe are much smaller than those of America.



The top of the Alps and a glacier.



The border of the Great Central Plain near Zaandam in Holland.



The low mountains of the north in Scotland. Loch Lomond, a glacial lake.

MAP STUDIES.—What ocean on the north of Europe? On the west? What great sea on the south? How is the Mediterranean connected with the Atlantic? What two seas form parts of the southeastern boundary of Europe?

How do you pass by water from the Mediterranean into the Black Sea? Where is the Strait of Messina? The Adriatic Sea? The Bay of Biscay? What sea north of the Atlantic Plain? What sea separates the Scandinavian Peninsula from the Great Plain? What three gulfs connected with the Baltic? What sea indents the Arctic coast of Europe? Where is Cape Clear? Cape Matapan? North Cape?

Name the great northern peninsula of Europe. What one on the extreme southwest? Southwest of the Adriatic? What does it resemble in form? What peninsula east of the Adriatic? Between the Baltic and the North Sea?

Surface.—What portion of Europe is occupied by the Great Low Plain? Where is the Atlantic Plain? Where are the Steppes? The Black Lends? Where is the lowest portion of the continent? What mountains border the Low Plain on the northeast? What plateau on the northwest? What two ranges in this plateau? What mountains between the Caspian and the Black Sea? What mountains on the southwest of the plain? Where are the Valdai Hills?

Where is High Europe? What plateau forms the southwest extremity? What mountain chain on the northern border of this plateau? In what direction do the mountain ranges of this peninsula lie? Where are the Alps? What is the general direction of this chain? What mountains are in the peninsula of Italy? What mountain chains in the plateau south of the Danube? Where is Mt. Blanc? Where do you find volcanoes? Geysers? What plain between the Danube and the Carpathians?

Rivers and Lakes.—What river forms part of the eastern boundary of Europe? What large river rises near the Valdai Hills and enters the Caspian? What river flows into the Sea of Azov? What river that drains the Black Lands enters into the Black Sea? What river drains

Central Europe and enters the Black Sea? What river enters the Adriatic Sea? What river flows from the Apennines into the Mediterranean? What river enters the Gulf of the Lion? In what two directions do the rivers of the Spanish Plateau flow? In what general direction do the rivers of the Atlantic Plain flow? Into what do the Oder and Vistula flow? What river enters the Gulf of Riga? What important one flows into the White Sea? What one into the Arctic Ocean?

Minerals.—What minerals in the mineral region of Central Europe? Among the Ural Mountains? Caucasus? Carpathians? Apennines? In Sicily? The Spanish Peninsula? British Islands? Scandinavian Peninsula? Where is amber found? Petroleum? Quicksilver?

Vegetation and Animals.—What do you find on the shores of the Arctic Ocean? Where is the northern limit of wheat? Of the vine? Of maize? In what parts of the British Isles does wheat not mature? Where does tobacco grow? The almond? Olive? Fig? Orange and lemon? Grape? The mulberry? Currant? In what waters are found the whale? The sturgeon? The salmon? The sardine? Coral? What fish near the British Isles? The Scandinavian Peninsula? What region contains fur-bearing animals? In what region do we find the camel?

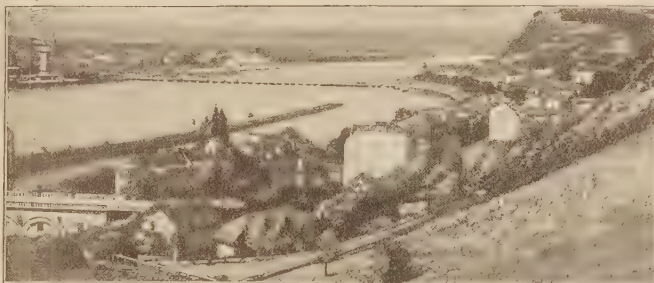


The mountain ranges of Europe extend some east and west, some north and south; they therefore divide the continent into a great number of small river basins.

The mountains of North and South America, on the contrary, have a nearly uniform direction, and divide those continents into river basins which are few in number and immense in size.

The Danube, the Rhine, the Rhone, and the Po rise in the Alps and flow into the Black Sea, the North Sea, the Mediterranean, and the Adriatic respectively.

The principal rivers of the Great Plain have their origin in and near the Valdai Hills. The Volga is the longest river in Europe (2,300 miles).



The Rhine coming down through the plains of Germany. Across the river is the city of Coblenz. On this side is Ehrenbreitstein, the famous castle and fortress. A bridge crosses the Rhine here.

MAP STUDIES.—What countries occupy the three peninsulas in the Mediterranean? What three countries of Northern Europe are peninsular? What great country consists of islands? What are the great countries of Central Europe? What countries border on the Black Sea? The Adriatic? What are without seacoast?

Russia.—What mountains form part of the eastern boundary of Russia? The southern? What peninsula projects into the Black Sea? Where is Finland? Lapland? Where is the Gulf of Finland? Of Riga? What islands north of Russia? Where does the Volga rise? Into what does it flow? The Don? Dnieper? Dniester? Vistula? Dwina? Onega? Petchora? Where is Lake Ladoga? Lake Onega? What is the capital? Where is it? Where is Cronstadt? Where is Moscow? Warsaw? Saratov? Nizhni-Novgorod? Kazan? Archangel? Astrakhan? Odessa? Baku?

Sweden and Norway.—What peninsula do these countries occupy? Where is the Gulf of Bothnia? The Baltic Sea? The Cattegat? What islands off the coast of Norway? Where is the North Cape? The Naer? Where are Lakes Venner and Wetter? What is the capital of Norway? Of Sweden? Where is Hammerfest?

Portugal.—Where is Portugal? Where is Cape St. Vincent? What are the three chief rivers? Name the capital. On what river? Where is Oporto?

Spain.—What mountains separate Spain from France? What strait separates Spain from Africa? Mountains along the northern coast? The southern coast? Name the rivers that flow into the Atlantic. Into the Mediterranean. Islands off the eastern shore. The capital. Where is Seville? Valencia? Barcelona? Saragossa? Malaga? Cadiz? Almaden? Palos? The Republic of Andorra? Gibraltar?

Italy.—What mountains on the north? Sea on the east? West? South? Where is Sicily? Sardinia? What small island between Italy and Corsica? Where is Cape Passaro? Gulf of Taranto? Gulf of Venice? Of Genoa? Where is the River Po? Tiber? What famous city on the Tiber? Where is Turin? Naples? Milan? Venice? Genoa? Florence? Palermo? What volcano near Naples? In Sicily? What volcano north of Sicily? What island south of Sicily? To what power does it belong?

Greece.—What sea on the east, west, and south? What country on the north? What islands east? What islands on the west? What large island on the south? Where is Cape Matapan? What is the capital? Where is Corinth? Piræus?

Turkey in Europe.—What countries on the north? Sea to the east? Country and sea on the south? What waters on the west? What island south of the archipelago belonging to Turkey? What is the capital of Turkey? Where? Where is Adrianople? Saloniki?

Servia, Roumania, Bulgaria, Montenegro.—Where is each of these States? Which are mountainous? Which are mostly plains? What mountain range has given a name to these states? What river separates Bulgaria and Roumania? Where is Belgrade? Bukharest? Sofia? Cetinje?

Trade Routes.—On what bodies of water would you pass in going from Liverpool to Suez on the Red Sea? From Queenstown to London? St. Petersburg to London? Odessa to Marseilles? Naples to Alexandria? Athens to Belgrade? London to Cologne? London to Marseilles? Odessa to Lyons? Hammerfest to St. Petersburg? Archangel to Hamburg? Venice to Alexandria?

How would you travel from Paris to Constantinople? From Berlin to St. Petersburg?

4. Climate.—Stretching from the heated waters of the Mediterranean up to the Arctic Ocean, Europe has every variety of climate, except that of equatorial regions.

Western Europe, from the North Cape to the Strait of Gibraltar, has a milder climate than Eastern Europe, and closely resembles that of the western coast of North America.

This is owing to the warm sea winds from the southwest, and to the influence of the great oceanic flow, which begins in the Gulf Stream and ends in the Atlantic Drift. This current is clearly perceptible at the Shetland Islands and off the coast of Norway.

In the harbor of **Hammerfest**, within the Arctic circle, ice rarely forms. On the other hand, the Gulf of **Finland**, in Eastern Europe, though it lies 12° of latitude farther to the south, is closed with ice every year from late in the fall till early in the summer.

The **British Isles** and **Labrador** lie between the same parallels of latitude; but, while the English winter is so mild that the pastures are green all the year, in Labrador the harbors are ice-bound, and the ground is covered with snow for nine or ten months in the year.

The climate of **Southern Europe** is tempered by the tepid waters of the Mediterranean and the hot winds from the Sahara. Its summers are long and its winters mild and short.

5. Minerals.—The mountainous portions of Europe are rich in minerals. Coal, iron, and salt, lead, tin, zinc, copper, and quicksilver abound.

6. Vegetation.—Southern Europe is the land of the vine and the fig, the olive, the lemon, and the orange, and of rice and other semi-tropical grains.

In Central Europe, between the Alps and the Valdai Hills, are



The Rhone at Lyons, France.



The Danube passing through the great plains of Hungary, above Budapest. The watermills which you see are built on boats anchored in the river. Between two boats is the great water wheel, which is turned by the force of the current and furnishes power to grind grain.





A castle in Bavaria, near Munich.

found the **deciduous** trees, the grains and orchard fruits and vegetables of the temperate zones.

In Northern Europe we find forests of pine, fir, and spruce, and the hardy grains, with the dwarfed plants, mosses, and lichens which belong to the Arctic region.

The extreme northern part of the Great Plain bordering the Arctic Ocean is, for nine or ten months, one continuous expanse of snow and ice. In the summer the ice melts and makes

swamps, lakes, and marshes. The ground, however, is never thawed deeper than three feet, and the largest plant is a willow that grows about one finger high.

7. Animals.—The domestic animals common in our own country are found in nearly all parts of Europe.

The forests abound with deer and wild boars, hares, foxes, and fur-bearing animals, as the sable, the marten, and mink. In the high Alps and Pyrenees are found the **chamois** and **wild goat**, and in Northern Europe the **reindeer**, which furnishes a large part of the food and clothing of the inhabitants of Lapland.

8. Contrasts with America.—Unlike America, Europe is an old country; its nations count their ages by centuries.

Its **resources** are well developed and it overflows with population. It contains about four times as many inhabitants as the United States, and more than ten times as many as the whole of South America.

In Europe, **land** is dear and **labor** abundant. In America, land is comparatively cheap and labor comparatively scarce.

Hence it is easier for a working man to make a living in America than in Europe. It is because of this that there is such a large **migration** from the Old World to the New.

To an American who visits Europe for the first time, the most striking features are the high state of improvement of the country, the

excellence of the roads, the vast extent of cultivated lands in proportion to woodlands, the number of cities and villages. At one time the kings and nobles of Europe owned all the land and lived in palaces and castles. The great masses of the people were very

poor. Many of these old palaces and castles are still standing in different parts of Europe, especially along the Rhine, in northern France, and in England.

9. Inhabitants.—The inhabitants of Europe, in the main, are Caucasians. They may be classified as belonging mainly to three great families, the **Teutonic**, **Latin**, and **Slavonic**.



An old castle in Sussex, England.

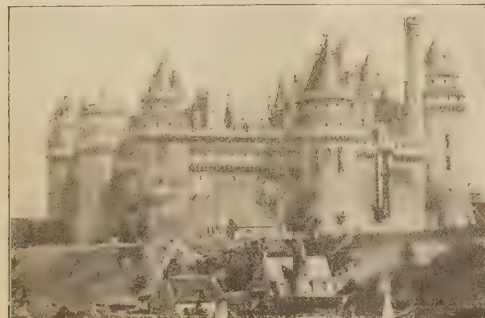
The **Teutonic** family includes the people of Germany, Scandinavia, and England. Russia is the home of the Slavonic branch, but there are other races also in European Russia. The **Latin** races include principally the people of Spain, France, and Italy.

The Caucasian race originated in Central Asia. Certain tribes from time to time wandered to Europe and settled in different parts of that continent. Separated by mountains and other barriers, there was little communication between them. They had no written language, and in the centuries that passed, each developed a language for itself, so that these tribes became different nations. But many words, like father and mother, are nearly alike in all these languages.

Review Topics.—Compare Europe in size with the other continents. What gives it the great facilities for commerce? Principal mountain ranges. The Alps. Their glaciers. The Great Plain. The Atlantic Plain. Compare in size the rivers of Europe and the New World. In what directions do the mountain ranges of Europe extend? Of America? What effect on river basins? Principal rivers of Europe? Describe the Volga. What varieties of climate has Europe? Compare the climates of Eastern and Western Europe. Of Hammerfest and the Gulf of Finland. Of the British Islands and Labrador. Climate of Southern Europe. What minerals abound? Describe the vegetation of Southern Europe; Central; Northern. The animals. Contrasts with America. Inhabitants.



A palace in Venice.



Pierrefond Castle, France.

Political Divisions of Europe.	Area, Square Miles.	Population.
United Kingdom.....	121,367	45,866,000
<i>England</i>	50,839	34,428,000
<i>Wales</i>	7,468	1,647,000
<i>Scotland</i>	30,405	4,760,000
<i>Ireland</i>	32,352	4,382,000
Russia in Europe	2,113,214	109,726,000
Sweden	172,920	5,522,000
Norway	124,122	2,393,000
Spain	191,986	19,083,000
Portugal.....	35,744	5,016,000
Italy	110,687	34,687,000
Greece	24,973	2,632,000
Turkey	64,599	5,885,000
Roumania	50,717	5,957,000
Servia	18,650	2,494,000
Bulgaria	37,320	4,320,000
Montenegro	8,506	228,000
Crete	3,328	310,000
France	207,217	39,252,000
German Empire	210,232	64,904,000
Netherlands	12,502	5,853,000
Belgium	11,303	7,517,000
Austria-Hungary	261,294	51,314,000
Switzerland	15,964	3,737,000
Denmark	15,300	2,757,000

LVI. GREAT BRITAIN AND IRELAND.



Durham Cathedral in the north of England.

1. The **United Kingdom** of Great Britain and Ireland consists of two large islands and a number of adjacent smaller ones. Great Britain, the largest of these islands, includes England, Scotland, and Wales.

The area of England is rather less than that of Georgia, but the population is about half that of the United States.

2. **Domain.**—This small country has established her colonies so widely that the sun never sets upon them.

She rules one-fourth of all the people, and controls about one-fourth of all the land in the world. All of her possessions together make the British Empire.

The following are her most important foreign possessions:

In **Europe.**—Malta, Gibraltar.

In **Asia.**—British India, Cyprus, Ceylon, Hong Kong, the Straits Settlements, Aden.

In **Africa.**—Sierra Leone, Gambia, Gold Coast, Nigeria, Cape of Good Hope, Natal, Basutoland, Orange Free State, Transvaal, Rhodesia, Bechuanaland, Nyasaland, Zanzibar, British East Africa, Uganda, and British Somaliland.

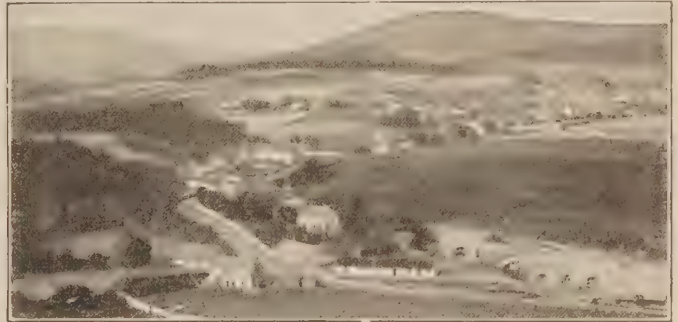
In **Australasia** and **Oceania.**—Australia, Tasmania, New Zealand, parts of New Guinea and Borneo, Fiji, and many other groups of islands in the Pacific.

In **America.**—Canada, Newfoundland, British Honduras, Jamaica, Bahamas, part of Lesser Antilles, British Guiana, Trinidad, Bermudas.

3. **People.**—The people are noted for enterprise in trade, soundness in learning, and devotion to liberty. They are leaders in the civilization of the world. They and we have the same language, the same ideas of law and liberty.

We carry on more commerce with them, and are more closely allied to them than to any other nation. The geography of Great Britain, therefore, is almost as interesting to us as the geography of our own country.

4. **Surface.**—Scotland, Wales, and the north of England are rugged, hilly, and mountainous. The eastern part of England is lowland. Many parts of the island are very picturesque.



Scottish scenery at Dufftown, near Aberdeen.

In **Scotland** and the north of England are beautiful lakes which history, song, and story have made famous. Many tourists visit the Highlands and the islands off the coast to enjoy the romantic scenery.

White, chalky cliffs rise on the south coast of the island, near the Strait of **Dover**. Much of the interior of Ireland is lowland, with low mountains near the coast.

5. **Climate.**—Great Britain is in the region of west winds which have been heated by the warm waters of the Atlantic Drift, or terminal current of the Gulf Stream, and consequently, although its latitude is that of Labrador, its climate is remarkably mild and equable. The mercury rarely approaches zero.

The **Scilly Islands** have a wonderfully mild climate. In **Scotland** the winter winds are cold, and the nights long. In the extreme northern parts there is at the time of the summer solstice no night. The sun sets, but a twilight, bright enough to read by, lasts until sunrise.

6. **Mineral Wealth.**—Great Britain is rich in coal and iron, which are the basis of her vast mining and manufacturing interests. Tin, salt, and valuable pottery clays are also found.

In **Cornwall** the **tin mines** have been worked far under the bed of the sea.

7. **Agriculture.**—The land is highly cultivated. Wheat, oats, and barley, hay, pease, hops, and the root crops are the chief agricultural products. The country is well adapted to grazing, and



The Manchester ship canal. A lock is shown in the foreground of the picture. In the background is a viaduct over which is carried another canal.

is famous for its breeds of horses, cattle, and sheep. The population of Great Britain is so great that her agricultural products supply food for only a small part of her people. Meats, grain, fruits, and vegetables are imported.

8. **Manufacturing.**—Great Britain excels all other countries but the United States in the value of her manufactures.

Textiles of all kinds, pottery, and iron wares are the chief productions.

SHEETLAND ISLANDS

ORKNEY ISLANDS

(Same Scale as large Map)



THE BRITISH ISLES

SCALE OF MILES

0 10 20 30 40 50 60 70 80



1000 Square Miles



LONDON and Vicinity

SCALE OF MILES

0 1 2 3 4 5

9. Great Britain is the foremost commercial country on the globe. For centuries her sailors and merchants have been establishing trade routes in all parts of the world. Her merchant vessels nearly equal in tonnage those of all other nations combined, and carry not only her own goods, but nearly half the goods of the other nations that lie along her routes of trade. This carrying trade is a great source of wealth to her. The navy of Great Britain is much larger and more powerful than that of any other nation in the world.

10. The Government of Great Britain is a constitutional monarchy. The crown is hereditary.

The executive power is vested in the **Cabinet**, which consists of the **Ministers**, or heads of the several departments of the Government.

Parliament is the legislative branch of the Government, and corresponds to our Congress. It consists of the House of Lords and the House of Commons. The members of the latter are chosen by the people. The members of the House of Lords are nobles and bishops.

11. Religion and Education.—The majority of the people profess the Protestant religion.

The **Episcopal Church** is the Established Church in England; the Presbyterian in Scotland; both are endowed by the Government. The majority of the people in Ireland are Roman Catholics.

Education is compulsory and there are public schools throughout Great Britain.

12. Cities.—**London**, the capital of the United Kingdom, is the largest city in the world, and the first in commercial importance.

On the Thames, fifty miles from its mouth, it is in the heart of England, and yet a great seaport with a short waterway to the mainland of Europe. Its docks and

piers extend along the river for twenty miles. Its chief imports are coffee, tea, spices, and cocoa, and its exports are manufactured articles. Its manufactures are varied and extensive.

London is the great money center of the Empire and the world, and trade balances between foreign merchants are paid through its banks. Distances east or west around the world are measured by all civilized nations from the Meridian of Greenwich at London, and all ship chronometers carry Greenwich time.

It is situated on both banks of the Thames, and covers an area nearly twice as large as the District of Columbia. It has more than 6,000,000 inhabitants. Parliament sits, and the king holds his court, in London. Some of the most noted public buildings in London are the House of Parliament, Westminster Abbey, the Tower, and the British Museum.

Liverpool ranks next to London in commerce. It is the great cotton market of Europe. **Manchester** is the chief center of cotton manufacture.

Birmingham is in the "Black Country"—so called from the number of its coal and iron mines. It is the great iron market of England.

Leeds is widely known for its iron and steel industries, and for the manufacture of woollens and clothing; **Bradford** for broad-cloth and worsted goods of every sort; **Nottingham** for laces and hosiery; and **Newcastle** for coal trade, glass bottles,

and chemicals.

Sheffield is celebrated for its cutlery, steel, and plated



Room of the same factory where these castings are being put together so as to form the frame of a machine for spinning cotton thread, such as is shown on page 56.



Building textile machinery at Manchester, England, showing the foundry where iron is melted in a furnace and run into molds which give each piece its proper shape. When cold, these castings are finished by machinery.



[Copyright, R. Y. Young]



Piccadilly (cut 1) and Fleet Street (cut 2), two famous old streets in London which are so narrow and crowded that street cars are not used. Notice the omnibuses in which people ride. At the head of Fleet Street can be seen the dome of St. Paul's Cathedral.

MAP STUDIES.—Name the British Isles. What three divisions occupy the largest of them? Where is Scotland? Wales?

England and Wales.—What sea on the east? Channel and strait between England and France? What waters between Great Britain and Ireland? What hills between Scotland and England? Where is Anglesey? Holyhead? Isle of Wight? Where are the Scilly Isles? Channel Islands? Where is Morecambe Bay? Cardigan Bay? Bristol Channel? The Wash? Menai Straits. What part of England is most mountainous? Where is Mt. Snowdon? What is the capital? On what river? Where is Liverpool? On what river? Where is Manchester? Salford? Bradford? Sheffield? Nottingham? Leicester? Brighton? Portsmouth? Birmingham? Leeds? Bristol? Newcastle? Oxford? Cambridge? Cardiff?

Scotland.—By what ocean is Scotland nearly surrounded? What channel separates it from Ireland? What sea on the east? What islands on the north? Where is the Minch? Where are the Shetland Islands

(see map of Europe)? Where are the Hebrides? Staffa? Staffa contains Fingal's Cave. The bays on the Scotch coast are called Friths or Firths. Where is the Frith of Forth? Tay? Moray Firth? Dornoch? Solway Firth? What hills in the central part of Scotland? Where is Ben Nevis? This is the loftiest peak in Great Britain, and is about 4,400 feet high. What canal crosses the northern part of Scotland? Where is Edinburgh? Glasgow? On what river? This river is famed for the ocean steamships built upon it. Where is Dundee? Inverness? Aberdeen? Dumfries? Paisley?

Ireland.—What bodies of water separate Ireland from England? From Scotland? What ocean west and south? Which portions of the island are mountainous? Where are the Wicklow Mts.? Where is Cape Clear? Several of the Atlantic cables terminate on the Irish coast at Valentia I. Where is it? Where is Dublin? Belfast? Cork? Queens-town? Londonderry? Limerick? Maynooth?

ware. **Southampton, Bristol, and Hull** are important sea-ports.

Portsmouth and Chatham are among the chief naval stations. At **Oxford and Cambridge** are celebrated universities.

Glasgow is the chief manufacturing center, and the largest city in Scotland.

It is the second largest in Great Britain.

It is celebrated for its cotton goods, chemicals, iron and steel steamships, and marine engines.



Clarence Dock, Liverpool. The rise and fall of the tides in the river Mersey is so great that immense stone docks have been built, into which the ships pass at high tide through gates like the gates of a canal. The gates are then closed, and the water level in the dock remains the same. Passengers are landed at a floating stage.

Edinburgh, on account of its institutions of learning and its historic past, is the most illustrious city in Scotland. It is noted for the publishing of books and maps.

Dundee is extensively engaged in the manufacture of linens, and **Paisley** in the manufacture of shawls and carpet and cotton thread.

Inverness stands at the northern terminus of the Caledonian Canal, which makes a water route from the Atlantic to the German Ocean.

Cardiff, the chief city and port of Wales, has a great coal trade.

13. Ireland, in general, is a rolling country. Much of the coast region contains mountain ranges of slight elevation.

In the southwest are the far-famed lakes of Killarney.



The climate is very moist and mild, because Ireland is the first of the British Isles to catch the west winds as they come from the sea, warm and laden with moisture.

Rainfalls are frequent, especially in the southwest. The fields, even in winter, are always green, and Ireland is therefore called the "Emerald Isle."



A shipyard at Glasgow on the river Clyde, showing an immense passenger steamer nearly ready for launching.

14. Productions.—Ireland is deficient in mineral resources. Coal is scanty, and peat is often used for fuel.

The most important crops are oats and potatoes.

The latter are the chief article of food among the laboring classes. Flax is extensively grown, and the best of linen is made.

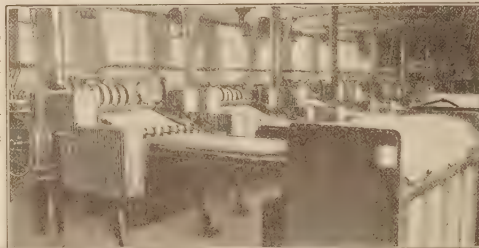


The famous vale of Avoca, in County Wicklow, Ireland, one of the most picturesque spots in Europe.

Ireland is a fine stock country. The cattle find pasture even in winter.

15. Cities.—**Dublin**, the capital and metropolis of Ireland, is a handsome, flourishing city, and manufactures chemicals and mineral waters. It is the seat of a celebrated university.

Belfast manufactures more linen goods than any other city in the world and has large shipbuilding industries.



Cork, on the river Lee, is the chief commercial city of southern Ireland.

At **Queens-town** the trans-Atlantic steamers take on and put off mail and passengers. It is the seaport of **Cork, Limerick, Waterford, and Londonderry** are other important Irish ports, having chiefly an import trade in breadstuffs.

Making linen in Belfast, Ireland. Flax is a fiber like cotton or wool, but is taken from the stalk of the plant. It was formerly cleaned by hand. Now this is done by a "hackling" machine, shown in cut 1. You can see the long row of flax fibers hanging across the front of the machine, where they are cleaned and combed smooth. They then pass to the machine shown in the second cut, where the fibers are drawn out and twisted into "cord." These cords, farther drawn out, are spun into thread, and woven into cloth by spinners and looms, very much like those used for cotton. (See page 54.) The third cut shows lace makers at work.

16. The Isle of Man, lying in the Irish Sea, although a part of the British Empire is practically independent. It has a legislature of its own, but is under a governor appointed by the king of England. The people are called Manxmen.

17. Several picturesque islands, called the **Channel Islands**, lie across the English Channel very near to France, but belong to Great Britain. The largest of these are **Jersey, Guernsey, and Alderney**. They are noted for their fine breed of cattle. You have seen cows called Jerseys, Guernseys and Alderneys.

Review Topics.—Great Britain consists of what? Describe her foreign possessions. The people. The surface. The climate. What are the chief minerals? Agricultural products? Manufactures? Describe commerce. Her carrying trade. Her navy. The government. The religion. London. Liverpool. Glasgow. Edinburgh. Manchester. Birmingham. Leeds. Sheffield. Newcastle. Nottingham. Portsmouth and Chatham. Oxford and Cambridge. Inverness. Cardiff. Describe the surface of Ireland. Climate. Productions. Dublin. Belfast. The Isle of Man. The Channel Islands.

LVII. RUSSIA, SWEDEN, AND NORWAY.

1. Russia.—Russia is one of the two largest empires in the world. It includes the eastern half of Europe and the whole of Northern Asia, and has a population of about 141 millions.

Great Britain, Russia, and the United States exercise dominion over nearly one-half of the land surface of the earth, and over more than one-third of its inhabitants. The English possessions lie chiefly in warm climates, the American in temperate, the Russian in cold.

2. Russia in Europe is, for the most part, a level country, occupying a large part of the "Great Plain" of the continent.

3. The principal rivers are the Volga, the largest in Europe, the Ural, Dnieper, Don, Dwina, Dniester, Vistula, Kama, and Petchora. Many hundred steamers ply on them.

Canals connect the chief rivers with the Black, Caspian, White, and Baltic seas, making in all 51,800 miles of waterways.

4. Climate.—Because Russia is so far from the ocean and has no mountains to break the cold north winds, it has a climate of great extremes, hot summers and cold winters.

The harbor of Archangel is closed by ice for six months every year, and the mouths of the Dnieper and Volga are closed for half that time. The rainfall is greatest in the western part, decreasing toward the east and southeast, where droughts are of common occurrence.

5. Resources.—Russia is rich in platinum, iron, gold, coal, copper, and zinc. The opening of coal and iron mines has made Russia a great manufacturing country.

The **Black Lands**, or fertile prairies of Central and Southern Russia, yield large crops of rye, wheat, oats, and barley, hemp and flax.

This part of Russia is one of the great granaries of Europe. The Empire produces more wheat, rye, and barley than any other country.

The grassy **steppes**, or treeless plains, sustain immense numbers of sheep, horses, and cattle, and the vast forests of the north abound in fur-bearing animals. More wool is produced than in any other country of Europe.

6. Pursuits.—Agriculture, lumbering, mining, and manufacturing are the chief pursuits.

A large inland trade with other parts of Europe and Asia is carried on by means of fairs.



Moscow, the old capital of Russia, in the center of the Great Plain, showing the Kremlin and the river Moskva, which is used as a canal.

The largest fair in the world is that held at **Nizhni-Novgorod**. Merchants from China, Mongolia, India, Afghanistan, Persia, Turkey, and all parts of Europe attend this fair. The annual concourse numbers more than 200,000 merchants. The importance of fairs is diminishing with the improvement of railroad communications.

The importation of **tea** from China is very large.

Both the internal and the foreign **commerce** have been greatly increased by a network of railways connecting the principal cities and seaports.

The **foreign trade** of Russia is chiefly with Germany.

Russia's manufacture of **cotton cloth** is enormous, placing her next to the United States among the cotton manufacturing nations. Other textiles also, leather goods, metals, and pottery are manufactured in large quantities, chiefly in the four great cities of Moscow, St.

Petersburg, Warsaw, and Lodz.

The chief articles of **export** are wheat and barley, lumber, flax and flaxseed, wool, petroleum, hemp, furs, and iron.

Russia sends to the United States hides, wool, hemp, and flax, and buys of us raw cotton, copper, and farm machinery. Her exports of grain go to the thickly settled countries of Western Europe.

7. People and Government.—The majority of the people are of the Slavonic race.

About 45,000,000 were formerly *serfs* or slaves, but, in 1858, the Czar Alexander II. began their emancipation. It was completed in 1892.

The **Government** of Russia has long been that of an absolute monarchy, but recently the Czar, or Emperor, has given the people some share in the government through a representative assembly called the Douma.

Public education is backward; there are universities in some of the larger cities, but elementary instruction is deficient, and three-fifths of the people are illiterate. The Russians belong to the Greek Church, of which the Emperor is the temporal head.

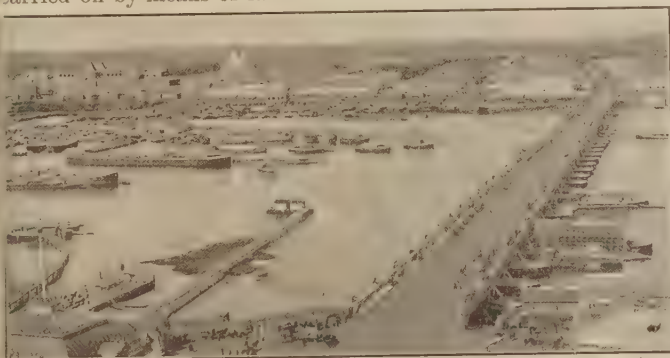
8. Cities.—St. Petersburg, the capital and chief commercial city of the empire, is situated on the flat and dreary marsh lands of the river Neva, near its entrance into the Gulf of Finland.

It lies on both sides of the river, which is crossed by seventy bridges. The most celebrated public buildings are the Church of St. Isaac and the Winter Palace of the Czar.

Moscow is the principal center of manufactures and internal



Russian peasants making hay in the northern part of the Central Plain. Notice the pine forests which characterize that section.



Nizhni-Novgorod, on the Volga. Beyond the bridge of boats are long rows of white buildings where goods are sold during the fair. On the river are many ships, canal boats, and barges which come from different parts of Russia. [Copyright, Underwood & Underwood.]



Kief, on the Dnieper, in the heart of the Black Lands. Notice the wharf boats which rise and fall with the river. Compare with Memphis.

commerce. It is celebrated for a large enclosure called the Kremlin, which includes forts, barracks, palaces, churches, and cathedral all in a group.

Warsaw is the great railroad, manufacturing, and trade center for Russian Poland. It is at the head of steam navigation on the Vistula. Lodz, not far distant, is in the iron and coal region.

St. Petersburg, Moscow, Warsaw, Lodz, and Narva are the cotton manufacturing cities of the Empire.

Odessa, on the Black Sea, is the great grain market of Russia.



A mountain farm in Norway. Notice the glacier on the right far up on the mountains.

Cronstadt is the port of St. Petersburg, and the principal naval station of Russia. **Kief** is engaged in sugar refining and the manufacture of leather.

Riga is a great market for flax and linseed, lumber and hemp. **Saratov**, on the Volga, is an important grain and lumber market.

Archangel, in latitude $64\frac{1}{2}^{\circ}$ north, is the shipping port of northern Russia. It has an export trade in grain and lumber through the Arctic Ocean.

Astrakhan is an island city on the Volga River. It is the center of the fisheries in the Caspian Sea and the Volga.

9. Sweden and Norway.—These two countries were united under one king in 1814, but became again separate kingdoms in 1905.

They occupy a mountainous peninsula, called Scandinavia.

The surface of Norway is rugged, and the rays of the sun strike feebly into its deep glens, so that the cultivation of the soil is not very remunerative. Sweden, however, raises large crops of grain, and affords pasture for millions of cattle and sheep.

In the northern part of Norway, during several weeks in summer, the sun does not set at all, and travelers often go to the North Cape to see the **midnight sun**.

10. The chief industries are connected with the forests,

which are very extensive and furnish timber for the shipbuilding industries of the countries of northern Europe; with the **mines**, which supply the celebrated Swedish iron; and with the **sea-fisheries** of the Lofoden Isles, which furnish large supplies of fish for Europe.

The chief **exports** of Sweden are timber, wood pulp, iron, live-stock, butter, and matches; those of Norway are lumber, fish, and butter.

The United States buys iron, wood pulp, and fish of these countries, and sells them raw cotton, kerosene, flour, and farm tools.

The Swedes and Norwegians are Lutherans in **religion**. They belong, therefore, to Protestant Europe. **Education** has received great attention. Public instruction is free, excellent, and compulsory.



One of the fjords or bays which are very numerous along the coast of Norway. These are formed by the sinking of the coast, which allows the waters of the ocean to flow up the narrow valleys.

11. Cities.—**Stockholm**, the picturesque capital of Sweden, at the eastern extremity of Lake Malar, is the chief city. It is situated in the mining and agricultural region.

Gottenborg is the second city in size and the first in commerce.

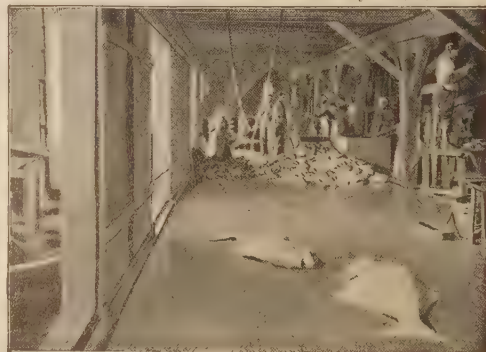
Carlscrona is the naval arsenal of Sweden.

Christiania, the capital of Norway, has a large trade in lumber.

Bergen is chiefly engaged in the Lofoden fishery.

Hammerfest, the most northerly town of Europe, has a population of 1,500, who, even in the winter months, are busily engaged in fishing.

12. Lapland, a region of Sweden, Norway, and Russia, lying within the Arctic circle, is inhabited by the Lapps, of whom there are about 14,000 in Sweden and Norway.



Packing fish in Norway.
(Copyright, Am. Stereo. Co.)

The **reindeer** is

the chief source of wealth, supplying the people with most of the articles of food and clothing that they use.

The Lapps, Finns, Eskimos, and tribes of northern Siberia, all belong to the same branch of the Mongolian race as the American Indians. They probably form the oldest branch of this race.

Review Topics.—Size and population of Russia. What three nations together control one-half of the earth? What part of the population? Describe surface of Russia. Rivers. Climate. Mineral resources. Manufactures. Black lands. Agriculture. Steppes. Pursuits. People. Government. St. Petersburg. Moscow. Warsaw. Odessa. Cronstadt. Kiel. Riga. Archangel. Astrakhan. What change has occurred recently in the government of Sweden and Norway? Describe their position. Surface. Chief industries. Exports. Religion. Education. Capital of each. Other cities. Hammerfest. Situation of Lapland. Its chief source of wealth.

LVIII. SPAIN, PORTUGAL, AND ITALY.

1. These countries lie mainly between the same parallels of latitude. They have similar climates and productions, and therefore similar pursuits.

2. **Spain and Portugal.**—Spain and Portugal occupy the Spanish Peninsula. This peninsula consists of a high central plateau, traversed by several parallel mountain chains.

As rain is shut out by high mountains along the coast, parts of the plateau are so dry that agriculture depends upon irrigation, which has been practiced for many centuries.

Some of the mountain peaks are high enough to be always covered with snow.

3. **The Inhabitants** have dark complexions, with black hair and eyes, quite different from the flaxen-haired, blue-eyed Germans of the north of Europe.

Like the Italians, and all other people who live in mild climates and under bright skies, they are lively and gay, inclined to outdoor amusements, fond of bright colors, and much given to music and dancing.

4. **The Government** of Spain is monarchical. Portugal is a republic. The Roman Catholic is the established religion in both countries.

5. **Spain** is

rich in minerals, especially in quicksilver, copper, iron, coal, lead, and salt.

The richest **quicksilver** mines in the world are at Almaden. Bilbao exports more **iron ore** than any other European port.

The principal **agricultural** products are grain, esparto, flax, olives, grapes, and other fruits.

The chief **exports** are ores and metals, wine, oranges, olive oil, cork, raisins, nuts, and grapes.

The United States buys a large amount of the cork, wine, and fruit, and sells to Spain a small amount of cotton, tobacco, lumber, and oil.

The **forests** yield large supplies of cork, the bark of the cork-oak.

This tree is peculiar to the Mediterranean countries.

6. **Cities.**—All the principal cities are connected by railroads. Many of these intersect at **Madrid**, which is the capital and largest city. It is celebrated for its palace, museums, and university. It is important only as a place of residence and as the seat of the court.



A grove of olive trees.



The river Tagus at Toledo. The old bridge was built by the Moors. The barren soil shows the effect of the dry climate. [Copyright by Am. Stereoscopic Co.]

In **Granada** is the great Moorish palace called the **Alhambra**. It is the finest specimen of Arabesque architecture in Europe.

7. **Gibraltar** is a celebrated fortress situated on a rocky promontory. It commands the passage between the Mediterranean and the Atlantic. It is a free port and belongs to England.

8. **The Andorra Republic** has an area of 175 square miles and a population of 6,000.

It received its independence as a gift from Charlemagne in return for the services which it rendered to his empire in repelling the Moors when they attempted to cross the Pyrenees.

9. **Portugal.**—Portugal occupies the western portion of the Peninsula, and its physical features are similar to those of Spain.

So, also, are its products and commerce.

It yields a larger supply of cork than any other country.

Lisbon is the capital and principal commercial city. It was the scene of a fearful earthquake in 1755.

Oporto is chiefly known for its port wine.

The **Colonial Possessions** of Spain are, mainly, the Canary Islands and certain islands and parts of the west African coast; of **Portugal**, the Azores, Madeira, Cape Verde Islands, and parts of Africa.

10. **Italy.**—Italy, the seat of the ancient Roman Empire, occupies a peninsula in Southern Europe which, except on the north, is surrounded by the Adriatic and Mediterranean seas.

It is famous for its bright skies and beautiful scenery, its fruits, its magnificent public buildings, picture galleries, and works of art.

Besides the peninsula, Italy comprises Sicily, Sardinia, and other less important islands.



Cutting cork bark. This does not kill the tree, since new bark forms over the peeled places.



The olives when ripe are crushed in this mill. The oil is afterward pressed out of them.

Northern Italy consists chiefly of a vast plain; the rest of the peninsula is traversed throughout its length by the Apennines as a sort of a backbone. Its lakes are extremely picturesque.

Southern and insular Italy contains the celebrated **volcanoes** of Vesuvius, Etna, and Stromboli.

Italy is connected with Central Europe by fine roads through the mountain passes, and by railroads which go through **tunnels**. The most famous passes are the great St. Bernard, the St. Gothard, the Mt. Cenis, and the Simplon. Under the three latter are railroad tunnels. Without these roads Italy could not carry on its large trade with Northern Europe.

11. Productions and Pursuits.—Wheat, corn, rice, grapes, olives, oranges, lemons, and figs are extensively grown.

Lombardy, as the valley of the Po is often called, is well watered, and its meadows may be mowed six times in a year. It is famed for the produce of its dairies, and the extent of its rice fields and mulberry groves. The mulberry leaf is the food of the silkworm. Italy produces more raw silk than any other country in Europe. The yield is not far from ten million pounds per annum.

The sulphur of Sicily, the marble of Carrara, iron, and borax are the principal mineral productions.

The chief occupation of the people is agriculture, and in northern Italy they are also largely engaged in manufacturing.



The harbor of Genoa.

The fisheries, including those of sponges and coral, employ as many as 20,000 vessels and boats, and 64,000 men.

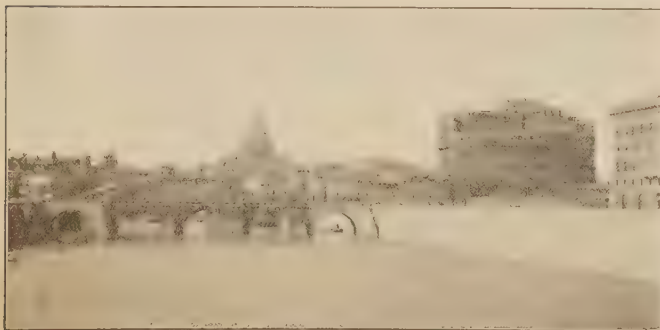
The principal exports are raw silks and velvets, olive oil, wine, and fruits, sulphur, marble, and macaroni. Leading imports are grain, raw cotton, coal, lumber, and wool.

Italy sells to the United States raw silk, fruits and nuts, sulphur and olive oil, and buys from us tobacco, lumber, and kerosene.

12. Government.—The government is a constitutional monarchy. The established religion is the Roman Catholic; others, however, are tolerated. Public education is compulsory.

13. Cities.—**Rome** is the capital of Italy, and the residence of the Pope, who is the head of the Roman Catholic Church.

Its ruins, its churches, its art galleries and museums, its traditions and associations, make it the most famous city in the world. It is continually crowded with students and tourists.



View on the river Tiber at Rome. St. Peter's in the distance.



A bird's-eye view of Venice, showing the Alps in the distance and the city built on the islands of the Adriatic. The Grand Canal passes through the city, and many other canals which serve for streets run in every direction.

Naples is the largest city of Italy. It is noted for its beautiful bay, and for its manufactures of silk.

Near it stood the cities of Herculaneum and Pompeii (see page 10). Great quantities of coral are obtained in the sea near Naples, and are manufactured into jewelry in the city.

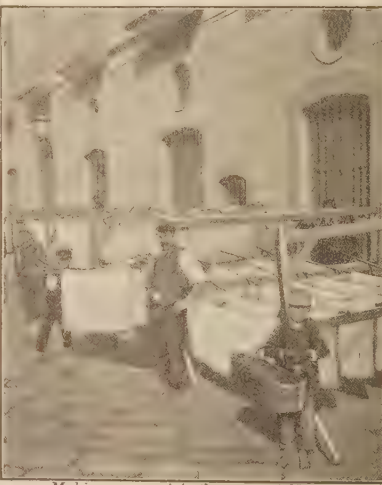
Venice occupies seventy-two small islands, connected by bridges. Canals take the place of streets. They are navigated in boats called gondolas.

Milan, the chief city of Lombardy, is the center of the silk

trade, and noted for its manufactures and its beautiful cathedral built of white marble.

Turin is celebrated for its beautiful situation and appearance, its museum and cathedral, and its manufacture of cotton, linen, and silk.

Florence, one of the most beautiful and healthful cities of Italy, is rich in its works of art. Nearby is **Fiesole** (*fe-ay-so-lay*), where Galileo used his telescope. The great sculptor Michael Angelo lived here.

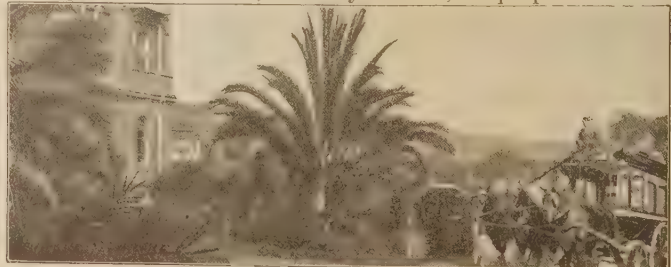


Making macaroni in the streets of Naples.

Palermo, the largest city on the island of Sicily, is a great fruit market.

Genoa, famous as the birthplace of Columbus, is the leading seaport of Italy. It manufactures the finest of silks and velvets.

14. San Marino is a picturesque little republic in Italy, on the spurs of the Apennine Mountains. It covers only about thirty-two square miles of land, and only about 8,000 people live there.



San Remo, a noted health-resort near Nice.

It is the smallest republic in the world, and was independent long before Columbus discovered America.

Review Topics.—How are Spain, Portugal, and Italy alike? The Spanish Peninsula. Inhabitants. Government. Religion. Productions. Exports. What is cork? Chief cities. The Alhambra. Gibraltar. Andorra. Portugal. Its products and exports. Cork. Cities. For what is Italy famous? It comprises what? Northern Italy. The Apennines. Volcanoes. Alpine passes. Agricultural products. Lombardy. Raw silk. Minerals. Chief occupation. Manufactures. Fisheries. Exports. Government. Religion. What is said of Rome? Naples? Venice? Other cities? San Marino?

LIX. THE BALKAN PENINSULA.

The Balkan States.—This name is frequently given to the states which occupy the Balkan Peninsula. They are Turkey in Europe, Greece, Bulgaria, Roumania, Servia, and Montenegro. Turkey once ruled the other states.

1. **Greece** occupies the southern extremity of this peninsula. About one-sixth of its area consists of islands which lie off the coast and stretch away in groups and chains to the shores of Asia. The mainland is nearly cut in two by arms of the sea.

The **Isthmus of Corinth**, which joins the two

parts, is crossed by a ship canal, and vessels bound for the Black Sea are thus saved the long and stormy voyage around the southern end of Greece.

The **surface** consists of rugged mountains and valleys affording beautiful scenery. The skies are clear and the climate is mild; but as there is little rain except in winter, there are no navigable streams, and farming is unsuccessful without irrigation.

The **industries** are chiefly agricultural and commercial. As in Italy, grapes, figs, and olives are extensively cultivated, but by far the most important product is the **currant** (a species of small grape), which is grown all along the shores of the Morea. We get also from Greece olive oil, sponges, marble, and licorice. We sell to Greece cotton, kerosene, and machinery.

Greek merchants and sailors carry on a large part of the commerce of the **Levant**, as the countries bordering on the eastern part of the Mediterranean are called.

Greece suffered under Turkish misrule for many generations, but in 1828 it became independent. It is now a kingdom. Roads, railroads, and



Shepherd in southern Greece.



Plowing on the plains of Thessaly in northern Greece.



Ship passing through the canal cut through the isthmus at Corinth.



In Athens, showing the Acropolis and the ruins of the Parthenon. On the right are the ruins of the Temple of Jupiter Olympus. The residences are all modern.

telegraphs are being constructed, and the brigandage which long disgraced the country is a thing of the past.

2. **Cities.**—Athens is the capital of Greece. It is unrivaled for the fame of its ancient philosophers, poets, painters, and orators.

Corinth was in ancient times famed for its wealth. **Piræus** is the port of Athens and is next in size to it.

3. **Turkey in Europe.**—The Turkish or Ottoman Empire lies partly in Eu-

rope, partly in Africa, and partly in Asia.

It includes also **Rhodes**, and other islands in the Eastern Mediterranean.

Turkey in Europe is semi-peninsular. It has

a sea on the east and on the west, and another on the south. This modifies the climate. Grapes,

figs, and olives flourish.

Much of Turkey is mountainous. Among its elevations is **Olympus**, the fabled home of the gods of ancient Greece.

The **natural resources** are great. Turkey is rich in minerals, forests, fisheries, and farming lands.

A bad government, together with the primitive methods used in the development of the resources of the country, have depressed all of its industrial pursuits.

The chief **exports** are raw silk and wool, carpets, grain, olive oil, tobacco, valonia (acorn cups for tanning), fruits, and various ores.

Turkey imports from the United States meats, cotton, steel, and leather.

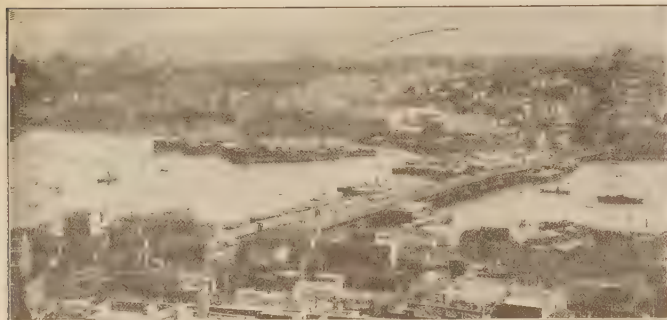
4. **The Inhabitants** of European Turkey are of several different nationalities.

The Turks are the governing race. They are Mongolians, and have dark complexions. The prevailing **religion** is the Mohammedan. Christians and Jews are also numerous.

5. **The Government** of Turkey is styled the Sublime Porte, from the gate (*porte*) of the Sultan's palace, where justice was formerly administered. The sovereign is called the Sultan.

The island of **Crete** has its own government, but still is a part of the Turkish Empire.

6. **Cities.**—Constantinople, the capital of the Turkish Empire, is beautifully situated on the Bosphorus, the waterway between the Black Sea and the Mediterranean. At this point the



View of the Golden Horn and Constantinople.

great land route from Western Europe crosses to Asia. These great highways have made it for many centuries the center of trade for the Levant. It is called the "Key to the East."

This city was founded on the site of old Byzantium, by **Constantine the Great**, in the year 328. In 1453 it fell into the hands of the Turks.

It contains the seraglio (*se-ral'yo*) or residence of the Sultan, and the mosque of St. Sophia. This building (once a Christian church) contains some columns which originally stood in the temple of Diana at Ephesus.

The Golden Horn, an inlet of the Bosphorus, is the harbor.

The chief manufactures are carpets, leather goods, and meerschaum pipes. (Meerschaum means *the foam of the sea*. It is really a kind of soft chalk.)

Adrianople is in a land of roses. It manufactures cotton and woolen goods, silk, and the perfume called "attar of roses."

Saloniki is beautiful in the distance, with its mosques, minarets, domes, and towers. It manufactures carpets, silk, and leather goods.

The celebrated **Mount Athos** stands on a peninsula to the east of Saloniki. It has been occupied for ages by a community of Greek monks.

7. Roumania is an interesting little kingdom. Its industries are chiefly agricultural. The people, as the name implies, are

France.—Bound France. What great mountain range separates France and Italy? France and Switzerland? France and Spain? Where is the Puy de Dome? What river enters the Gulf of the Lion? Between what mountain ranges does it flow? Into what does the Seine flow? What two large rivers flow into the Bay of Biscay? Where is the island of Corsica? What is the capital? What seaport at the mouth of the Seine? On the Mediterranean? Where is Lyons? Brest? Rouen?

German Empire.—What countries on the south? West? East? Country and seas north? Mountain range between Bohemia and Bavaria? Between Bohemia and Saxony? Between Silesia and Bohemia? Where is Prussia? Bavaria? Württemberg? Saxony? Baden? Alsace? Hesse? What rivers flow into the North Sea? Into the Baltic? What large river crosses Bavaria? Where is the Isar? The Hartz Mountains? What is the capital? Where is Hamburg? Bremen? Lübeck? Dresden? Munich? Leipsic? Nuremberg? Strassburg? Mainz? Cologne? Breslau? Dantzic? Frankfort? Wiesbaden? Stettin? Königsberg? Heidelberg?

Netherlands.—What sea on the north and west? What Empire on the east? Country on the south? Large river flows through the Netherlands? Sea indents the coast? Islands skirt the coast? What is the capital? Where is Rotterdam? Amsterdam?



Mosque of the Sultan Achmet at Constantinople.

descendants of ancient Roman colonists. Their language is largely Latin in origin.

Bukharest, the capital, exports grain, cattle, and wine. **Jassy** is an important center of trade.

8. Serbia.—Serbia is a kingdom of farmers. The poorest own land. No pauperism exists. The chief article of export is hogs. Immense numbers of them feed in the vast forests on the acorns which cover the ground. **Belgrade**, on the Danube, is the capital.

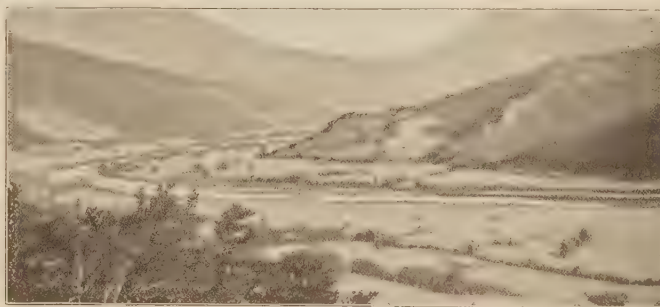
This city has been the scene of many battles between Christians and Mohammedans during the attempts of the latter to conquer Europe.

9. Bulgaria is a kingdom.

The surface is rugged, but there is much fertile land. Wheat and animal products are the chief exports. **Sofia** is the capital.

Varna is the principal port.

Montenegro, bordering on the Adriatic, is a little, independent kingdom.



View of the Balkan Mountains and the valley of the Drina on the border of Serbia.

Review Topics.—Where is Greece situated? Its natural divisions. Surface. Coast. Industries. Products. Exports. Greek merchants. The "Levant." Government. Brigandage. Athens. Corinth. Piræus. Where does the Turkish Empire lie? Climate. Surface. Natural resources. Government. Exports. Inhabitants. Religion. Government. The Principality of Bulgaria. Capital. Exports. Constantinople. What is the effect of the geographical position of this city? Buildings of interest. Manufactures. Describe Adrianople. Saloniki. Mount Athos. Roumania. Serbia. Exports. Bulgaria. Montenegro.

Belgium.—What countries nearly surround Belgium? What sea on the northwest? What is the capital? On what river? On what river is Ghent? Where is Antwerp? Liège? Namur?

Denmark.—What sea on the west? What bodies of water on the north and east? What portion of Germany on the south? Name the peninsula and two largest islands of Denmark. What is the capital?

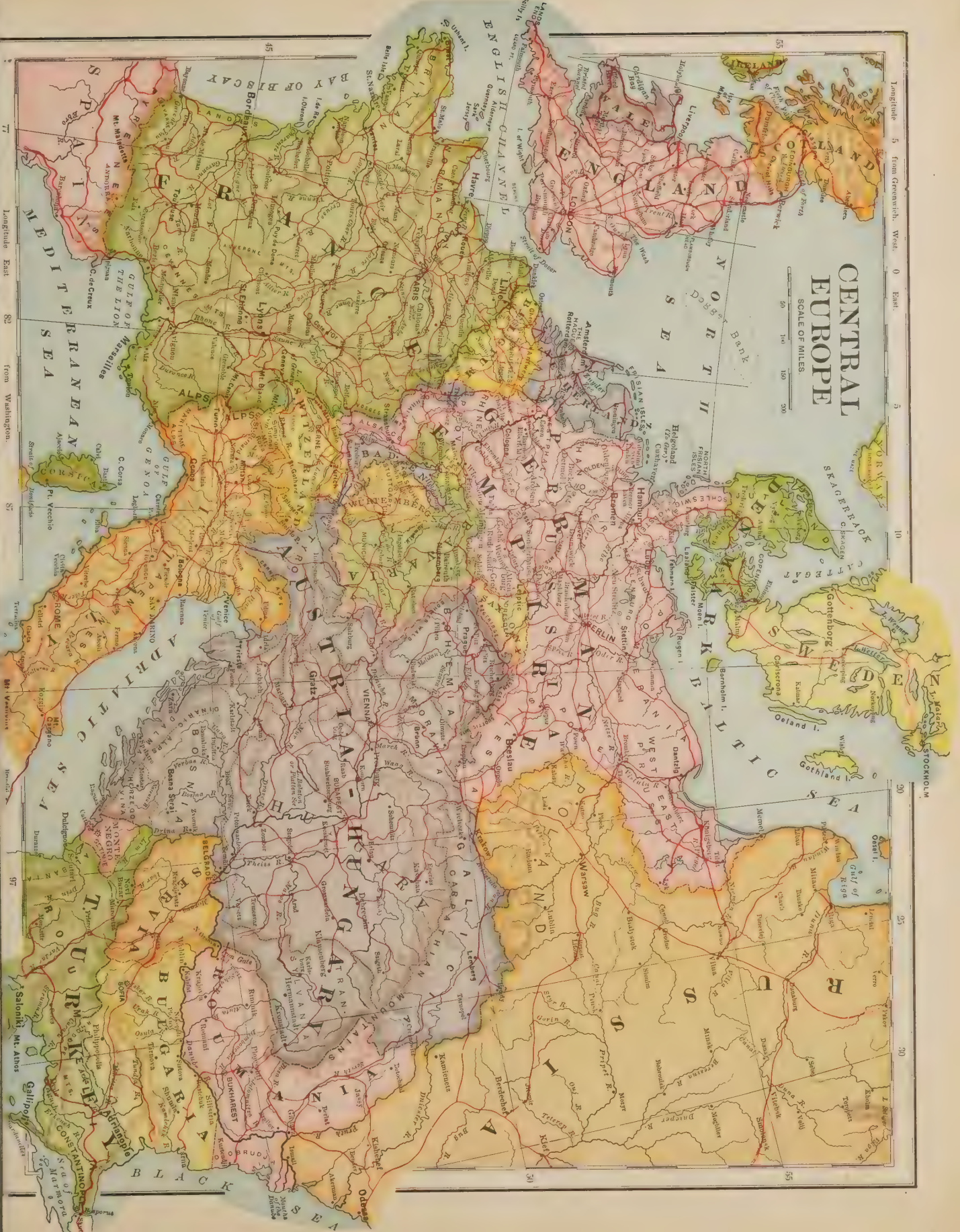
Austria-Hungary.—What countries on the west? North? East? South? What sea forms part of the southern boundary? What mountains in the northeast? Near the Adriatic coast? Where is Hungary? Bohemia? What great river traverses this country? What is the Save? Drave? Theiss? Moldau? The Platten See? What is the capital? Where is Budapest? Prague? Brünn? Gratz? Tokay? What is the great seaport?

Switzerland.—What country on the south? East? North? West? What mountains separate Switzerland from Italy? From France? What lake in the northeast? Southwest? What river rises on the northern slope of the Alps and enters the Gulf of the Lion? What river, rising not far from the source of the Rhone, flows into the North Sea? What is the capital? Where is Geneva? Zurich? Basel? Lausanne?

Longitude 5 from Greenwich, West 0 East 5 10 15 20 25 30

CENTRAL EUROPE

SCALE OF MILES
0 50 100 150 200

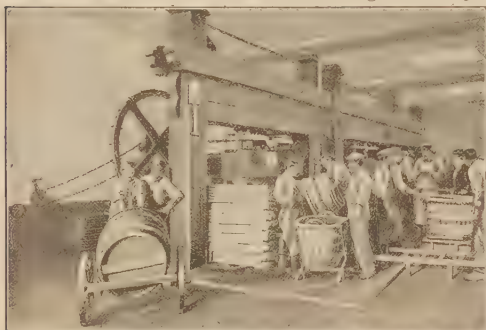


LX. FRANCE.

1. **France** is only a little larger than Georgia, Alabama, Mississippi and Tennessee together, but its population is about half that of the United States.

The Great Plain extends across northern and western France to the Bay of Biscay, broken by highlands in Normandy and Brittany. Southeast of this is the Central Plateau, and beyond the mountain region of Southern Europe. Ranges of the Alps, including Mt. Blanc, the highest peak, are in France.

The **Rhone**, the **Seine**, the **Loire**, and **Garonne** are the principal rivers. With the **canals** connecting them they form the chief means of transportation.



winds from the Atlantic and the Mediterranean modify the temperature.

3. **Productions.**—In Southern France the vine, the olive, the orange, the pomegranate, the fig, and the silkworm all thrive. Sheep are raised in large numbers.

Central France is the wine and maize region.

The districts of Champagne and Burgundy, and the valleys of the Garonne and Dordogne, constitute the greatest **wine-producing** region in the world.

In Northern France the chief products are grain, orchard fruits, and root crops.

The beet root is extensively cultivated for making sugar.

France grows more than 300 million bushels of wheat a year, yet she must import a considerable amount. In the northwestern part



In the mountains of southern France, showing a graded public road.

dairying forms an important occupation, and cheese and butter are exported. Near the Belgium border and in the eastern mountains **coal** and **iron** are extensively mined. Near by are great manufacturing cities.

2. **Climate.**—The latitude of France corresponds nearly to that of Maine, but its climate is far milder. The



Wine-making in France. A vineyard in Champagne, near Rheims, showing how the grapes are gathered. Above, the grapes are being brought to the wine presses, and below is a cellar showing the large vats and casks in which the wine is stored.



On the plain, southwest France, showing the river Garonne, a railroad, and a canal which is carried across both by an aqueduct bridge.

4. **Occupations.**—The people are unsurpassed for thrift and industry. They are largely engaged in agriculture, manufacturing, mining, and fishing.

Silk culture is extensively carried on. The value of the cocoons annually produced is about \$15,000,000.

France has a high rank in **manufactures**, and excels in silks, velvets, and woolens, perfumes, jewelry, ladies' dresses, and millinery.

The French artisans surpass all others in the designing of patterns, and in the arrangement of colors.

The **sardine** fisheries of the Mediterranean and west coasts, the oyster fisheries, and the cod fisheries of the Atlantic and the Banks of Newfoundland are very important.

In foreign and domestic commerce France is one of the leading countries of Europe. She imports from the United States, cotton, petroleum, meat, and grain in

enormous quantities. France buys more goods from the United States than from any other country except Great Britain, and sells to us an amount of her manufactures about equal in value to her imports from this country.

More than 100 canals unite the various rivers. Railways extend from Paris to all parts of France and the continent. Steamers sail to all the principal ports of the world.

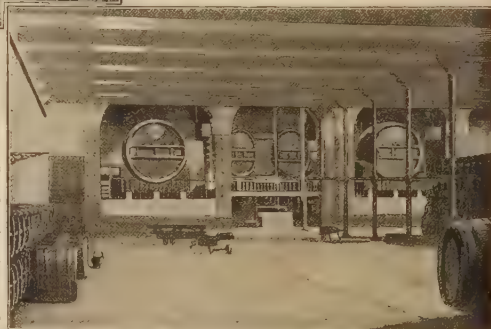
Silks, woolen and cotton goods, wines, jewelry, millinery, gloves, and ladies' clothing are the chief exports.

5. **Government and Religion.**—France is a Republic. The people enjoy religious freedom. The majority are Roman Catholics. Public education is free and compulsory.

The French are descendants of the Celts and of the Franks, a German tribe who conquered them.

In Brittany are found the Bretons, who are of the Celtic race.

6. **Cities.**—Paris is the most splendid city and one of the most influential capitals in the world. The French language is the one in which the diplomats of Europe generally hold intercourse.



Paris manufactures an endless variety of articles, from the finest cambric needle to the most powerful steam-engine.

It is famed for its jewelry, gloves, perfumery, and fancy articles of all sorts. It sets the fashion in dress for Europe and America. Its schools and other institutions of learning, its scientific societies, libraries, and public buildings are unsurpassed.

The palace of the Tuileries, the Bourse (*Exchange*), the churches of Notre Dame and the Madeleine, are among the most interesting public buildings. The Champs Elysées (*Elysian Fields*) is one of the most beautiful streets in the world.

Havre is the port of Paris through which come raw cotton, tobacco, wheat, wool, coffee, and animal products from America.

Versailles, near Paris, contains a park and a magnificent palace built by the architect Mansard as a residence for Louis XIV.

Lyons is the second city in France, and the foremost of all in silk manufactures. It employs many thousand persons in its industry.

Marseilles is the largest seaport town in France.

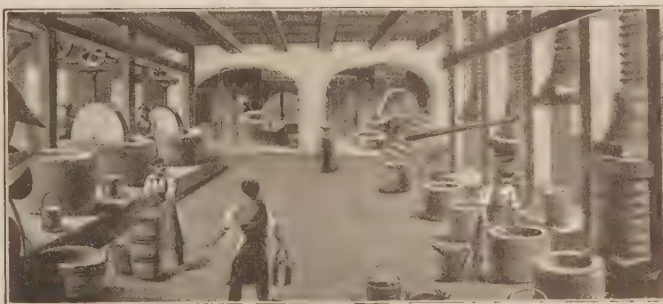


Making the famous French plate glass at Jeumont. Glass is made of sand and soda or some other alkali melted together in a furnace. This melted glass is drawn from the furnace and poured upon a broad plate, as shown in the cut. An immense iron roller is rolled over the soft mass until a perfect plate of the thickness desired is produced.

and woollens, and **Rubaix** for its cloth-finishing mills.

At Rheims the sovereigns of France used to be crowned. It is largely engaged in the manufacture of woollens and in the sale of wines. In **Bayonne** the first bayonets were made. Hence their name.

At Nantes (nantz) the famous edict giving religious freedom was



An olive-oil mill at Nice, France.

signed by Henry IV., in 1598. The city is largely engaged in commerce. **Sèvres (sāv'r)** and **Limoges** are noted for their porcelain.

Colonial possessions.—The most important colonial possessions of

France are—in **Africa**, Algeria, Tunis, Morocco, Senegal, French Equatorial Africa, Dahomey, and Madagascar; in **Asia**, French Indo-China; in the **New World**, French Guiana and the islands of Martinique and Guadeloupe; in **Oceania**, New Caledonia, Tahiti, and the Marquesas.

The island of Corsica, in the Mediterranean, belongs to France. It is a mass of mountains and is famous as the early home of Napoleon Bonaparte, who was born there in the town of Ajaccio, in 1769.

The island of Elba is noted for iron ore.



On the quay at Bordeaux, showing a hydraulic crane used for loading and unloading ships.

Review Topics.—Area of France. Surface. Rivers. Climate. Productions of Southern France. Of Central. Northern. Occupations. Rank in manufactures. Foreign commerce. Domestic. Canals. Railways. Government and religion. People. Describe Paris. Use of French language in Europe. Manufactures. Versailles. Lyons. Marseilles. Bordeaux. Lille. Toulouse. Rouen. St. Etienne. Cherbourg. Brest. Toulon. Amiens. Rheims. Bayonne. Nantes. Colonial possessions.



View of the city of Paris, showing the Seine, with its famous bridges, and the Isle of France.

The docks of Marseilles are among the finest in the world. The city is extensively engaged in manufacturing olive oil and macaroni, and has also a very large trade in silks, fruits, wines, and olive oil.

Bordeaux is noted for its wines; **Lille** for its linen and cotton goods, and beet-root sugar.

Toulouse is famed for its steel works, cannon foundries, and woolen factories; **Rouen**, the "Manchester of France," for its



Docks at Marseilles. The tide gives no trouble in the Mediterranean. Compare with the docks at Liverpool and other cities.

cotton mills. **St. Etienne** is in the midst of coal mines. It is noted for its firearms, and contains the largest ribbon factories in the world.

LXI. THE GERMAN EMPIRE.



The German plateau.—The valley of the river Stein at Munster.

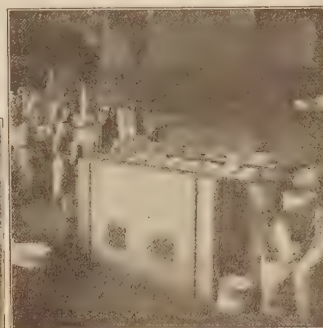
1. The German Empire is a **confederation** including the four kingdoms of Prussia, Saxony, Bavaria, and Württemberg, together with six Grand Duchies, five Duchies, seven Principalities, three Free Cities, and one Imperial Province. Prussia is the largest and most populous of the German States.

2. **Area.**—The German Empire is a little larger than France, but it is much more densely peopled. Saxony is the most densely populated country in the world.

3. **Surface.**—North Germany and all east Germany occupy a portion of the great plain of Europe. South of this plain is the central plateau, which, in the western half of the empire, extends to the Alps. It is a part of the same worn-down mountain region that borders the plain in France, and ward throughers have cut deep in this plateau, and low mountain ranges rise above it.



Making Dresden china at Meissen.
1. Molding dishes from clay.



2. The clay pieces are placed in ovens where the great heat changes the clay into china.

extends east-Austria. River-valleys in

The **Rhine** is the most noted of these rivers. It is famous for its romantic scenery. **Canals** connect it with the Danube, the Seine, and the Rhone. The Elbe, Weser, the Oder and Vistula are all navigable and are connected by canals.

4. **Products.**—Coal, iron, zinc, silver, lead, copper, and salt are found throughout the plateau region, and this explains why the Germans have named the mountains of Saxony the Ertzgebirge, or "ore mountains."

In the northern part of the plain **amber** is mined, but it is not a mineral. It is the resin of a kind of pine tree buried ages ago and thus hardened. It is washed up along the shores of the Baltic. In ancient times amber was highly prized. It is now used in making beads, jewelry, and mouthpieces for pipes.

Mineral springs also abound. Baden-Baden, Aix-la-Chapelle, and Wiesbaden are famous watering places.

The **agricultural products** are varied. The grains and sugar-beet are raised in great abundance; flax grows in all parts of the empire; tobacco and grapes flourish in the warm river valleys.

Forests cover one-fourth of the country. They are under government care.

The mountains of Germany are covered with forests, and this is shown by the names which the Germans have often given their mountains. The Black Forest (German, *Schwartzwald*), east of the Rhine, which is so famous in German stories, is the name of a mountain region nearly 5,000 feet high.

The manufactured products include all articles that a country needs, and Germany ranks third among manufacturing nations.

The woollens of Saxony, the Rhine wines of Prussia, the china of Dresden, the dolls of Sonneberg, the toys of Nuremberg, and the Krupp guns and steel armor of Essen are famous all over the world.

More than twice as much sugar is manufactured from beets in Germany as is made from cane in Cuba, and in this industry she ranks first among the nations.

5. **Occupations.**—Eight millions of the population are engaged in tilling the soil. Manufacturing, wool-growing, and mining are also leading pursuits.

To promote
cial fairs
of Leipsic



3. The china is next painted and decorated, and again placed in the oven and heated until the coating which has been placed on it becomes enamel.

machinery, clothing, hides, leather, and chemicals. Her imports are mainly raw materials and food products. Find out from statistical tables IV and V about the trade she has with the United States.

Transportation.—Steamship lines connect the ports of Germany with all parts of the world, and railroads connect all the important cities with one another and with the leading cities of Europe.

6. **Government.**—The general government of Germany is a limited monarchy. Each State regulates its own local affairs.

Representatives are sent from each State to the **Bundesrath**, and to the **Reichstag**, which are the Upper and Lower Houses of the German Parliament. The king of Prussia is also the emperor of Germany.

History.—The present German Empire was established in 1871 through the influence of Prince Bismarck, and William, king of Prussia, was the first emperor.

The German people are descendants of Caucasian tribes that are thought to have come



Making beet sugar. The beets are sliced and placed in the iron tanks. These are connected and warm water is forced through them. The water dissolves the sugar out of the beets and comes out as a syrup which is made into sugar in the same way as cane juice. Such an arrangement of tanks for extracting the juice is called a diffusion battery.

trade, great commerce are held. Those are the most famous.

Trade.—Germany has a large and rapidly growing commerce with all parts of the world. In value this trade is next to that of the United Kingdom. Her great exports are iron and steel goods, cottons, woollens, and silks, beet sugar, machinery, clothing, hides, leather, and chemicals. Her imports are mainly raw materials and food products. Find out from statistical tables IV and V about the trade she has with the United States.

from Asia and settled around the Baltic Sea and in the Scandinavian peninsula. They resisted the Roman Empire, and after its fall different tribes of the race conquered Italy, Spain, France, and England, all of which had been parts of the Roman Empire. Karl the Great, whom the



An ocean steamship in dry dock at the Vulcan yards, Stettin.

French called Charlemagne, established an empire which fell to pieces after his death. It was re-established a hundred years later and lasted until it was broken up by Napoleon. It was a loose confederation of states and never closely united like the German Empire of to-day.

7. The People.—The Germans are thrifty, ingenious, and intelligent. We are indebted to them for many great inventions, and for scholarly works on the ancient languages, on chemistry, and philosophy. They are noted for their love of music, and some of the greatest composers have been Germans.

The Schools and the Army.—Germany owes her high rank and her influence among the nations to her public schools and her army. Every child must go to school and every man must serve in the army. This system was adopted many years ago, and to-day the German public schools and the universities are famous, and the army of the empire is one of the best in the world.

8. The Free Cities, Hamburg, Bremen, and Lübeck, are republics, although a part of the empire. They are extensively engaged in commerce. Hamburg, on the Elbe, is the chief port of Germany, and the first commercial city on the continent. It has steamship lines to every part of the world.

Hamburg's population has more than doubled in the last few years; its growth is due to the development of the manufactures and industrial interest of Germany. Bremen, on the Weser, ranks second as a seaport. Its harbor is Bremerhaven.

9. Cities.—**Berlin**, the capital of the empire and of the kingdom of Prussia, is one of the largest and finest cities of Europe. It is celebrated for its university and public buildings.



Hamburg, Germany.



"Unter den Linden," a street in Berlin.

Dresden, the capital of Saxony, is famous for its art gallery and libraries and its pottery.

The Dresden china is made at **Meissen**. **Chemnitz**, nearby, manufactures cotton and woollens, hosiery and knit goods.

Munich, the capital of Bavaria, is renowned for its literary institutions and galleries of art. **Nuremberg** is the market for hops and toys.

Breslau is the great wool and linen market of the empire, and the center of an extensive trade.

Leipsic and **Stuttgart**, the capital of Wurtemberg, are famed for their printing establishments, and Leipsic for the number and cheapness of its publications and for its great university.

Cologne, famous for its cathedral, and its wine and perfumery, is the most populous city of Prussia on the Rhine. **Ehrenbreitstein** is one of the strongest Prussian citadels.

From **Königsberg** and **Dantzic** large quantities of Russian grain are shipped. **Stettin** is an important seaport, and has the largest shipyards in Germany.

Frankfort-on-the-Main is a great financial center, and depot of inland trade. **Strassburg** is celebrated for its trade, its fortress, and its cathedral, which contains a wonderful clock. Most of our dolls come from **Sonneberg**.

The colonial possessions of Germany comprise certain portions of the eastern and western coasts of Africa, a part of New Guinea called Kaiser Wilhelm's Land, the Bismarck Archipelago, the Marshall and the Caroline Islands, and part of the Solomon and part of the Ladrone Islands in Oceania.



An old town in Germany. Notice the gate with watch tower and bell.



Public square in the old city of Nuremberg.

Review Topics.—What does the German Empire include? Surface of Germany. Mineral resources. Agricultural. Manufactures. Occupations. Government. Who is emperor of Germany? The people. Schools. Name the free cities. Describe Hamburg. What of Berlin? Dresden? Munich? Breslau? Leipsic? Cologne? Ehrenbreitstein? Königsberg and Dantzic? Stettin? Frankfort? Strassburg? Colonial possessions?

LXII. NETHERLANDS, BELGIUM, AND DENMARK.



Delft, showing the sea wall, the canal, and the water beyond. The buildings are oil refineries.

1. The Netherlands.—The Netherlands, also called Holland, is a low and flat country intersected with canals which drain the land and serve as roads. One-third of it has literally been reclaimed from the sea, the waters of which are being kept out by means of an embankment like the levees on the Mississippi river.

The people themselves call their country "Nederlanden," which means low countries. We call it "Holland;" but they apply this name only to those parts below the sea level, the word Holland in their language meaning hollow country.

The country lies in the delta of the Rhine, and the higher parts were built up by deposits from that river, which here enters the sea through several different



Cheese-making in Holland. 1. The interior of a dairy.

channels. These are connected with the canals so that one can go by boats all over Holland. Railroads have been built, but the canals are still used by the people in going to and from market.

The Dutch are a sober, provident, and thrifty people. The chief industries are agriculture, commerce, and manufactures.

The country is a sort of dairy farm, from which England obtains supplies of meat, butter, and cheese. It is also famed for its linen.

The Dutch are fine sailors, and are extensively engaged in sea fisheries and commerce.

The herring and oyster fisheries in the North Sea are a source of great wealth. The Dutch herrings are known all over the world.

The government is a constitutional monarchy. The States-General is the legislative body. It corresponds to our Congress. The people are mostly Protestants, but all religions are tolerated, and Protestants, Roman Catholics, and Jews alike receive aid from the public funds.

2. Cities.—The Hague is the seat of government. It is famed for its museum.

Amsterdam, on the Zuider Zee, is the largest and most important city. Its diamond polishers are the most celebrated in the world.

Rotterdam is next to Amsterdam in size. It is the chief port of the country and is one of the important seaports of the world. A ship canal connects it with the sea. Utrecht, Haarlem, and Leyden are important towns. Edam and Alkmaar are noted for their cheese.

Delft manufactures fine pottery, and is a great cheese and butter market.

Holland has no coal, iron, or other metals. What effect does this have on her industries? Building materials and timber are also lacking.

Brick, tile, and earthenware are made in abundance. Butter, cheese, meat, and oleo-margarine are leading exports. Besides jewelry and



3. The cheese market at Alkmaar.

diamonds, we buy from Holland tobacco, tin, fish, hides, and cheese. She obtains the tobacco and tin from her colonial possessions. We sell to her flour, cotton, meats, and naval stores.

The colonial possessions of the Netherlands contain a population numbering about 30,000,000 people, or more than seven times as large as that of the mother country. They embrace many of the most

important of the **East India Islands**, several of the **West Indies**, and **Dutch Guiana**. The most valuable of all is **Java**, so famed for its coffee. The little islands of **Banca** and **Billiton**, in the East Indies, supply most of the best tin in the world.

3. Luxemburg was once a part of the Netherlands, but it is now independent, by agreement between the powers of Europe. It is governed by a grand duke, though it belongs to the German



Rotterdam, showing a canal lined with boats that bring produce to market.

Zollverein, or Customs Union. The people generally speak German. It is on the plateau which is rich in iron ore, and mining is an important industry. Agriculture is the occupation of most of the people. The city of Luxemburg is the capital.

4. **Belgium** is one of the most densely populated countries of the world. In the south the people resemble the French in speech



Stacks of flax along the river Lys, and men engaged in rotting, or soaking, it to loosen the fiber from the woody part. The water of the Lys is exactly suited to this work, which is a leading industry of this part of Belgium. [Copyright by Underwood & Underwood.]

and customs, while in the north they are like the Dutch.

The northern section lies in the Great Plain. The southern part lies in the Central Plateau, which is rich in minerals.

Belgium is rich in forests and minerals, and is noted for the extent and variety of its manufactures. It is one of Europe's greatest coal and iron producers. The soil is fertile and is carefully cultivated.

Belgium manufactures more goods in proportion to its population than any other country. Its leading manufactures are woolen goods, linens, and laces. In the coal region iron and steel manufactures are leading products. The linen industry is carried on along the river Lys, and Brussels and Mechlin laces are sold everywhere. Brussels carpets were first made here.

The government is a constitutional monarchy. The majority of the people are Roman Catholics. Full liberty is granted



Manufacturing firearms in Liège. 1. Polishing gun stocks.



2. Making gun barrels. A solid bar of metal is heated and hammered until it is tempered and in shape. It is a forward bored out. This is a steam trip hammer used to forge the metal.

religious to all.

Trade.—Belgium has an enormous foreign commerce for so small a country. Her exports are coal and coke, textiles of every sort, beet sugar, glass, machinery, diamonds, and a large variety of manufactures. She imports raw materials and foods, lumber, metals, kerosene, and coffee.

She buys our food products, naval stores, raw cotton and petroleum. She sells us linens, laces, dress trimming, diamonds, and fine gun barrels.

5. **Cities.**—**Brussels**, the capital, on the Senne, is for its beauty second Paris. It is widely known for its lace. Near Brussels is the field of Waterloo, where Napoleon was defeated. **Antwerp** is one of the chief commercial ports of Europe.

Ghent is extensively engaged in the manufacture of cotton goods.

Liège, near the coal fields, is noted for the manufacture of iron and steel wares and firearms.

Ostend, an important seaport on the North Sea, is the headquarters of the Belgian cod and herring fisheries. **Bruges** is famous for its linens and lace. This town derives its name from its bridges, of which there are fifty-four.

6. **Denmark.**—Denmark consists of the low peninsula of Jut-

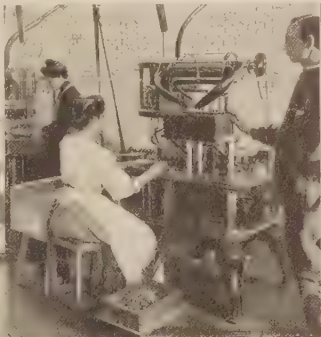
land, together with several islands near the entrance of the Baltic Sea.

The coasts are low and shelving. The western shore of Jutland is so dangerous that it is called by sailors the "iron coast." The eastern coast is less inhospitable, and has several excellent harbors. There are numerous bays or fiords which reach far into the land.

The "Sound," a strait only three miles wide, separates Denmark from Sweden. It is the natural highway for vessels bound to the Baltic. Many buoys and lighthouses, maintained by the Danish Government, are required to render its navigation safe. The Kaiser Wilhelm Canal, which connects the Baltic and the North Sea, now enables vessels to avoid the passage of the Sound.

7. The peninsular form of Denmark renders the climate moist, even, and mild. The inhabitants are chiefly devoted to agriculture, stock-raising, fishing, and shipbuilding.

Produce.—Denmark mainly milk, Beef, cattle,



3. Charging the metal cartridges. The machine puts in the cap, measures the powder, and fastens the ball in the shell.

tions and Trade.—Denmark produces and exports butter, and cheese. Horses, wool, and eggs, also, are sold. Our imports from Denmark consist chiefly of hides, wool, and rennet, a substance used in cheese making. We sell to Denmark oil-cake, grain, flour, cotton, and kerosene. Flour, beet sugar, and

liquors are made, and Copenhagen builds ships out of Norway lumber. The most careful attention is given to butter making. There are over one thousand steam factories, where it is packed and salted to meet the demands of all markets. Enormous quantities are exported.

The government is a limited monarchy; the religion of the people is Lutheran; education is nearly universal.

Copenhagen, on the island of Zealand, is the capital, and the only large town in the kingdom.

The colonial possessions of Denmark are Iceland, Greenland, several of the West Indies, and the Faroe Islands.

The **Faroe Islands** (population 10,000) are volcanic in origin. Sheep farming is profitable, and barley is raised. Many of the islanders live by climbing the dangerous cliffs for the eggs and feathers of sea-birds.



The market place at Copenhagen.

Review Topics.—Describe the Netherlands. Describe the Dutch. Their industries. Navy. Government. Religion. The Hague. Amsterdam. Rotterdam. Colonial possessions. Luxemburg. Describe Belgium. Its resources and manufactures. Government. Religion. Brussels. Waterloo. Antwerp. Ghent. Liège. Ostend. Bruges. Of what does Denmark consist? Its coasts. Climate. Industries. Exports. Government. Describe Copenhagen. Colonial possessions. Faroe Islands.

LXIII. AUSTRIA AND SWITZERLAND.



Innsbruck.—The Alps in the background.

1. Austria-Hungary.—The Austro-Hungarian Monarchy consists of the Empire of Austria and the Kingdom of Hungary.

Government.—Each country has its own officers, constitution, its own parliament, and executive. But the Emperor of Austria is also the King of Hungary. One set of ministers to foreign lands represents both countries, the army and navy belong to both, and some laws for the common good are made by the two parliaments acting together.

Austria is in the mountain region of Europe, and three-fourths of the empire is mountain ranges or plateaus. Hungary consists of a great, almost treeless plain, very fertile, and enclosed by mountains. Bohemia is a high plateau enclosed by four ranges of mountains.

2. Productions and Pursuits.

Austria is rich in minerals, especially in iron and quicksilver mine to that of Almaden is the richest in Europe. The mineral waters of Carlsbad, Teplitz, and Marienbad are famous.

Agriculture is the chief industry. The leading productions are grain, wine, tobacco, the sugar-beet, and flax.

The flour and wines of Hungary are among the most noted in Europe.

The western provinces are largely engaged in manufacturing.

Bohemia is famed for its colored glassware. Its factories of linens and damask are also celebrated; much beet-sugar is manufactured.

The principal exports are sugar, grain, wool, flour, eggs, timber, cattle, coal, leather goods, glass, and wine.

Her trade is almost entirely with northern Europe. She sells half her food exports to Germany, and buys one-third of her imports there. The leading imports are cotton, coal, silk, wool, copper, and machinery. She sells to us flax, beet-sugar, glassware, beer, and hides, and buys raw cotton, copper, kerosene, and machinery. She has considerable trade with Eastern countries, supplying the leading imports of Roumania, Bulgaria, and Servia, and handling their exports.

The **Danube**, with its tributaries, extending from one end of the empire to the other, furnishes facilities for a large inland trade, while,

with the Black Sea, it forms a continuous water-route for foreign commerce. It presents the grandest river scenery in Europe.

3. Cities.—**Vienna**, on the Danube, is the capital of Austria, and the chief seat of its manufacturing industries. It is a great railroad center, and has a large trade down the Danube. It is the focus of the inland trade of the country, as **Trieste** is of the foreign trade. It is noted for its public buildings and libraries.

The workshops of Vienna send forth large quantities of hardware, porcelain, silks, jewelry, gold and silver embroidery, and musical instruments.

Prague, formerly the capital of Bohemia, contains one of the oldest universities in Europe.

It is the commercial center of Bohemia, and the second city of Austria.

It was the birthplace of John Huss and Kepler. The church in which Huss preached is still standing.

Grätz is in the iron region of Styria, and is the great center of the iron trade. **Brünn** is noted for its woolen, silk, and linen manufactures.

Pest, on Danube, and called *Ofen*, hot springs),



3. Glass vessels are pressed into shape and then cut on a revolving stone, as shown in the picture.



2. The ends of the cylinder are cracked off, and it is cut open with a diamond from end to end. It is then placed in a furnace on a flat surface and the heat causes it to open and flatten out, forming a pane of glass.

Glass making, a famous Bohemian industry. 1. The sand and other materials are melted in a furnace. The workman then gathers a ball of glass on the end of a tube and blows it into a globe, as shown in the cut. Another workman attaches an iron rod to the other end of the globe, and they draw it and roll it into a cylinder.

salt. The of Idria, next in Spain, is the richest in Europe. The mineral waters of Carlsbad, Teplitz, and Marienbad are famous.

Szegedin is an important grain and wine market of Hungary. **Lenberg** is noted for its fairs.

Wieliczka is famous for its salt mine, which has been worked for 600 years. It yields annually 100,000,000 pounds of salt.

Berchtesgaden is noted for its salt mine containing a beautiful lake.



Vienna.—Franz's Ring, the finest street in Europe.—The parliament house and cathedral.

4. Switzerland.—The Republic of Switzerland consists of 22 separate "Cantons," or States, which are as distinct from each other as the States of our Union. The general affairs of the Republic are managed by a Congress somewhat like our own.

5. Switzerland is the most **mountainous** country in Europe, and is world-renowned for its magnificent scenery. It is largely bounded and traversed by the Alps. Mont Cervin, or "The Matterhorn," rivals Mont Blanc in grandeur, and the Jungfrau exceedingly beautiful.

Many of the peaks are covered with **perpetual snow**, while hundreds of the valleys are filled with **glaciers**, or ice rivers. From certain of these the Rhine and the Rhone take their origin. Many of the waterfalls are famed for their beauty. Among the most noted are those of the Rhine, at Schaffhausen, and the Staubbach (*dustfall*), 1,000 feet high.

The Swiss **lakes** are unrivaled for beauty. Those of Geneva, Constance, and Lucerne are very celebrated.

The famous Hospice of **St. Bernard** is in Switzerland. It is occupied by Benedictine monks, who, before the days of railroads, sent out the dogs of St. Bernard, during snowstorms, with baskets of provisions and wine tied to their necks, to relieve travelers who were lost in the snow.



Summer hotel far up in the Alps, with a diligence waiting for tourists.

6. The Swiss are industrious and liberty-loving. The majority are Protestants. Education free and compulsory.

Owing to the mountainous character of their country, which is better adapted to grazing than tillage, the Swiss do not produce breadstuffs enough for their own use, but import grains in large quantities and raw products for manufacture, such as cotton, silk, minerals, and coal. Waterfalls are used to generate electricity for turning mill-wheels.

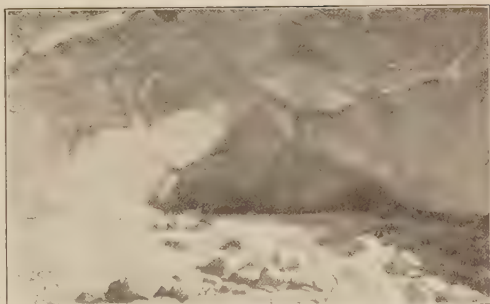
Their chief industries are cattle-raising, dairy-farming, and manufacturing.

They are famed for their watches, cotton and silk goods, and musical boxes. These, with condensed milk, cheese, and toys, are the chief exports.



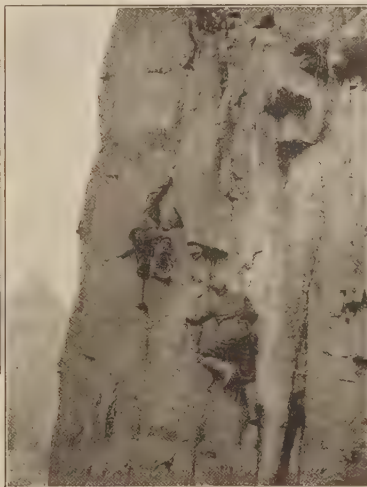
City of Lucerne, showing the lake, the steamers, and the summer hotels.

One-third of the people are engaged in manufacturing. Thousands of hand looms in Zurich and St. Gall turn out the richest of silks, laces, and embroideries. Swiss muslins are sold all over the world. Geneva watches and engraved and enameled jewelry command high prices. Straw braid for hats, wood carvings, leather goods, fine machinery, and scientific instruments are other characteristic products. The Swiss maintain technical schools to train workmen for their factories. Besides textiles, we import cheese, clocks and watches, aniline dyes, and rennet from Switzerland, and sell her raw cotton, iron and steel goods, and chemicals. Swiss trade is mainly with her neighbors, France, Germany, and Italy.



The Rhone glacier, under which the river begins.

Cities.—Berne is the seat of the general government of the Swiss republic.



Climbing a high peak in the Alps.



A high valley in the Alps, showing a hut where herdsmen live during the summer, pasturing their cattle and making butter and cheese.

Geneva is famed for its manufactures, and its beautiful situation. Zurich and Basel are noted

for their silks; Lucerne, for the magnificent scenery near it of mountains and lake.

Interlaken, in a high mountain valley, faces the Jungfrau, and is a favorite summer resort. St. Gall is a manufacturing town, and is famous for its hand-made embroideries and linen laces.



Interlaken, with the Jungfrau in the distance.

Altorf, in the heart of the Alps, is regarded by the people as the birthplace of Swiss liberty. It is said to have been the home of William Tell, and in the market place was placed the cap of Gessler, the Austrian governor, before which Tell refused to bow.

Review Topics.—Austria-Hungary. Government. Inhabitants. Surface. Minerals. Agriculture. Manufactures. Exports. The Danube. Cities. Switzerland. Government. Surface. Peaks and valleys. Lakes. Hospice of St. Bernard. The people. Industries. Exports. Cities.

ASIA.

LXIV. PHYSICAL FEATURES.

1. We now pass from the States of Europe to the **oldest** nations and the **largest** continent on the globe.

Asia is larger than the two Americas together.

It contains the highest mountains and plateaus in the world, the largest population, and the greatest variety of race, language, and religion. Its coast line is marked by many indentations.

2. **Surface.**—The continent may be divided into three sections: the **Great Northern Plain**; the **Central Region** of desert plateaus and mountains; and the **Peninsulas** of the south.

The **Great Northern Plain** extends from the Altai Mountains and the Caspian Sea to the Arctic Ocean. Its extreme northern portion, bordering on the Frozen Ocean, consists of low marshes called Tundras.

The tundras are dreary and desolate. Their scanty population is



On the Great Northern Plain of Asia.—A small town in Siberia.

MAP STUDIES.—What oceans on the north, south, and east of Asia? What seas on the eastern coast? What islands enclose Bering Sea? Okhotsk Sea? Sea of Japan? East China Sea? South China Sea? What great bay and sea on the south? Seas on the west and northwest? How are Asia and Africa united? What two mountain ranges partly separate Europe and Asia? What two peninsulas project from the south of Asia? What peninsula between the Persian Gulf and the Red Sea? What peninsula between Bering and Okhotsk Seas?

Surface.—Is Asia in general highland or lowland? Where is the greater part of the lowland? What is it called? What are the steppes? The tundras? Where are they? What plain east of the Caspian Sea? Northwest of the Persian Gulf? South and southwest of the Himalaya Mountains? What plain west of the Yellow Sea?

What great region stretches across the continent from the Red Sea to the Pacific? What plateau between the Red Sea and the Persian Gulf? South of the Caspian? What mountain ranges form the eastern boundary of this plateau? What plateau north of the Himalaya Mountains? What one north of Tibet? What plateau east of the plateau of Turkestan? What desert occupies a large part of this plateau? What plateaus occupy the two southern peninsulas?

In what direction do the Asiatic mountains generally lie? What great mountain range north of the plain of the Ganges? Between what two plateaus are the Kuen Lun Mountains? What mountains bound the plateau of Turkestan on the north?

What two mountain ranges separate the plain of Turkestan from the plateau of Iran? What range north of the plateau of Mongolia? What range bounds the desert of Gobi on the east? Where are the Nanling and Peling Mountains? What mountains border the plateau of the Dekkan on the east and west? What plateau between the Mediterranean and the Black Sea? What range of mountains between the Caspian and the Black Seas? What peak west of the Caspian?

Rivers and Lakes.—What are the three great rivers of the Northern Plain? Into what ocean do they flow? In what lake does the Yenisei rise?

What are the three great rivers on the eastern slope of Asia? Where is the Mekong? The Irawadi? The Brahmaputra? The Ganges? The Menam? How many rivers unite to form the Indus?

What two rivers unite and flow into the Persian Gulf? Where is the Caspian Sea? The Aral Sea?

Minerals.—What minerals are found among the Altai Mountains? Among the Ural? What in the plateau of Turkestan? North of the Hindu Kush Mountains? On the shores of the Caspian Sea? In the Dekkan? Between the Nanling and Peling Mountains? In Indo-China? The Japan Islands?

Vegetation and Animals.—What grow on the low Arctic shores? What are the products of the plain of Turkestan? Plateau of Iran? Arabia? Asia Minor? The district east of the Khingan Mountains? Plain of China? Uplands south of the Yangtze River? Plateau of Indo-China? Malay Peninsula? Dekkan? Plains of the Indus and Ganges?

What animals in the Great Northern Plain? Plateau of Mongolia? Tibet? Iran? Arabia? Where are the polar bear and seal found? Fur-bearing animals? What animals are found in the desert regions? Where is the elephant found? The crocodile? The tiger? The rhinoceros? What domestic animals are found in China?

composed of the nomad tribes called Samoiedes, who live mainly on fish and the flesh of the reindeer.

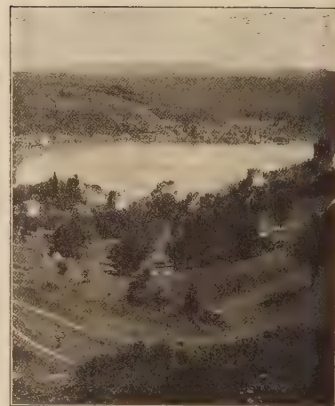
South of this belt is a vast forest region, extending from the Gulf of Finland to the Pacific shores of Asia, a distance of 4,000 miles. It is the abode of numerous fur-bearing animals.

In the west, between this wooded region and the mountains, are the **steppes**, or rolling prairies, which are gay with flowers in the spring, and green with grass in the summer.

They are the home of the roving Kirghiz (*-gēz*) and Tatars (*tah'-*), who here find pasturage for their herds.

The **Central Region** of desert plateaus and mountains extends from the Red Sea nearly to the Pacific Ocean. It may be divided into two portions, an eastern and a western.

The **Eastern** portion embraces Tibet (the loftiest plateau on the globe), with the desert plateaus of Turkestan and Mongolia,



View of the plateau of Anatolia and the Bosphorus, from the shore of Europe, near Constantinople.



View of the Kirghiz steppes. These tents the only homes of the Tatars, who move from place to place when necessary to find better pasturage for their herds.



ASIA PHYSICAL MAP

SCALE OF MILES
0 500 1000



Plains — Green
Low-lying areas — Dark green
Highlands, Plateaus — Yellow

Longitude 147 East from 187° Washington 167° West 123° Longitude 148

and a region of less elevation lying to the eastward and sloping gradually to the sea.

This region is **bordered** by the Altai Mountains on the north, and the Himalayas on the south, and is traversed east and west by lofty mountain chains.

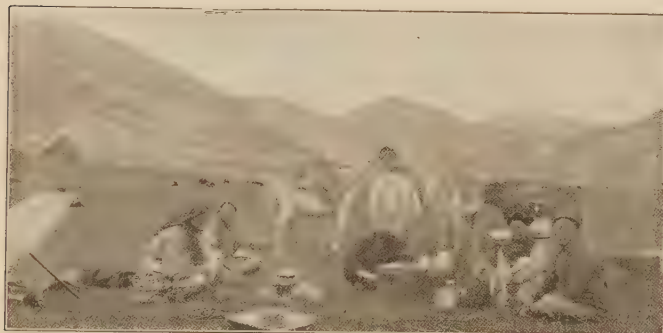
The **Himalayas** (*abode of snow*) are the highest mountains in the world.

Along their entire length of 1,500 miles they rise far above the line of perpetual snow. Among their many lofty peaks stands the majestic Mount Everest, more than 29,000 feet high.

These mountains present every possible feature of mountain **grandeur**: peak and precipice, gorge and glacier, rugged ravine and headlong waterfall. They are grander than the Alps, but not so beautiful.



On the summits of the Himalayas, the highest mountains in the world. These are young mountains, and are always covered with snow. Notice that scattered through the glacier are boulders of rock which have been broken off, and will be carried down to the valley below.



View on the lofty plateau of Tibet.

MAP STUDIES.—What empire occupies a large part of Eastern and Central Asia? What country occupies most of Northern Asia? The southern peninsula? What three countries border on the Persian Gulf? What two to the east of Persia? What empire off the eastern coast?

China and dependencies.—What mountains and river on the north? What mountains on the west? The south? Where is China proper? Where is Tibet? Chinese Turkestan? Mongolia? Manchuria? What are the principal mountain ranges in China? Large rivers? Where is Hongkong? What city north of Hongkong? At the mouth of the Yangtze river? What triple city on this river? What is the capital of China? On what river? What is the capital of Tibet? The chief towns in Turkestan? Chief place in Mongolia? Capital of Manchuria?

Japan.—What are the principal islands occupied by the Empire of Japan? Which is the largest? What sea and strait separate Japan from the mainland? What is the capital? What city south of Tokyo? Where is Port Arthur? Korea?

Indo-China.—What countries occupy the region? What is Siam? What European power owns Burma? Where is Cape Romania? Capital of Siam? Capital of French Indo-China?

British India.—What great mountain ranges form part of its boundary? What sea on the west? Bay on the east? What are the principal rivers of India? Where is Cape Comorin? Where is Nepal? Bhutan? Kashmir? Name the capital of India. Where is Madras? Bombay? Benares? Delhi? Surat? Where is Ceylon? What is the capital?

Afghanistan and Baluchistan.—What mountains border these countries on the east? What traverse the northern part of Afghanistan? What sea on the south? What are the capital and chief towns of Afghanistan? What is the capital of Baluchistan?

Persia.—What sea on the north? What gulfs and strait on the south? What mountains in the northern part? In the southern part? What is the capital? Where is Isfahan? Meshed? Tabriz? What port on the Persian Gulf?

Arabia.—Notice the form of Arabia? What waters nearly surround it? What country incloses the northern portion? What state occupies the southeastern coast? What is its capital? Where is Hayel? Riad? Aden?

Turkey.—On what seas and gulf does Turkey border? What two provinces in the Arabian peninsula belong to Turkey? What noted mountain at the head of the Red Sea? What strait at the entrance of the Red Sea? Is the capital of Turkey in Asia? What is it? Where is Smyrna? What city on the Tigris? On the Mediterranean? Where is Damascus? Jerusalem? Medina? Mecca? Mocha? What comes from this port?

Asiatic Russia.—What are the two great divisions of Asiatic Russia east of the Caspian Sea? What one west? Where is Lake Balkash? Lake Baikal? Sea of Aral? Into what does the Ural flow? The Amur? The Syr Darya? Where is Tobolsk? Khiva? Kokan? Bokhara? Irkutsk? Tiflis? Omsk? Tiumen? Barnaul? Kiakhta? Where is Nova Zembla? What sea south of it? Where are the New Siberia Islands?

The western portion comprises mainly the desert plateaus of Arabia and Iran, which are separated from the great northern plain by the Hindu Kush and Elburz Mountains.

The **Peninsulas** of Asia have a varied surface of tablelands and low mountains, well-watered valleys and river plains.

They are a region of great interest in the history of the world. From Arabia, Mohammedan civilization

took its origin; and the Sanskrit, or sacred tongue of India, is the oldest language of the white race.

India and Indo-China are, with China and Japan, among the most densely populated portions of the world.

3. Rivers and Lakes.—The rivers of Asia are numerous and important.

The most noteworthy are the **Hoang, Yangtze, and Amur**, which flow down the eastern slope of the continent and enter the Pacific, and the **Ganges and Indus, the Mekong, Irawadi, and Brahmaputra**, which descend the southern slope and flow into the Indian Ocean.

These rivers have built up the rich flood plains of China, Indo-China, and India, and furnish **water routes** for a vast internal commerce. The Hoang River or Yellow River has built up its flood plain with deposits of rich earth called "Loes," much like the bluff formation of the Mississippi. The Hoang winds about in its flood plains and frequently cuts a new channel for itself to the sea.



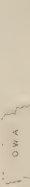
On the Mekong river in flood time.



ASIA

POLITICAL MAP

SCALE OF MILES



140
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TIME when it is Noon on the Meridian of Washington

8:00 P.M.



View on the sacred river Ganges, at Benares, showing bridge of boats in the distance.

The principal rivers of western Asia are the **Euphrates** and **Tigris**, which enter the Persian Gulf.

The **Ob**, **Yenesei**, and **Lena** are the chief rivers of the Northern Plain. They are frozen over for six months of the year; but during summer they are the waterways for local commerce.

The Yenesei, Ob, and Yangtze are each more than 3,000 miles in length.

Several of the rivers, like the Amazon, are subject to **bores**. Those of the Indus, the Hoogly, and the Brahmaputra are remarkable.

The plateaus and plains of Asia abound with salt lakes. The Caspian and Aral Seas are the largest of these.

The **Caspian** is the largest lake in the world. It is more than four times the size of Lake Superior.

The **Dead Sea**, whose surface is more than 1,300 feet below the level of the Mediterranean, is the lowest of these salt lakes.

Of the **fresh-water** lakes the largest is Lake Baikal. It is 400 miles in length, and is a valuable highway for commerce. In winter it is frozen over and becomes a highway of trade and travel.

Review Topics.—Compare Asia with the other continents in size. Physical features. Population. Its three divisions. Northern Plain. The tundras. Forest region. Steppes. The Central region. Its extent. Divisions. The eastern. The Himalayas. The western portion. The surface of the peninsulas. What makes them interesting? The chief rivers of the eastern slope of Asia; of southern slope. What two great purposes do these rivers serve? Name the rivers of western Asia; of the



The Yangtze river cutting its way through the mountains. This river is the great commercial highway of China. It is navigable for ocean steamers 700 miles, and for smaller vessels, 1,500 miles higher. There are many dangerous rapids, and from 50 to 200 men are required to pull each boat up the stream past these rapids.

Northern Plain. Which are the longest rivers of Asia? How long are they? What is said of the salt lakes? The largest? What is said of the Dead Sea? Name the largest of the fresh-water lakes.

LXV. CLIMATE, VEGETATION, RACES.

1. Climate.—The Northern Plain receives the cold winds of the Arctic Ocean. Its winters are long and severe, and its summers short.

Central Asia, between the Altai and Himalaya Mountains, has

generally a temperate climate, with the exception of Tibet, which, owing to its elevation, is bleak, and largely uninhabitable.

The great peninsulas of the south, and the desert plateaus of Western Asia have, for the most part, a tropical or hot climate.

2. Moisture.—A glance at the physical map shows that most of Asia west of the Hala Mountains (which form the boundary between the plains of the Indus and the plateau of Iran), and south of the fortieth parallel of latitude, is poorly watered.

This region is mainly occupied by the **plateaus** of Iran and Arabia, which are enclosed by low mountains that border the coast. These mountains rob the sea breezes of their moisture, and render the interior plains generally dry and barren.

Eastward of the Hala Mountains we find the **peninsulas** of India and Indo-China. They lie



One of the outlets of the Yangtze at Shanghai. Notice the landing and native boats in the foreground. A British gunboat and one of ours are in mid stream.



The valley of the Irrawadi at Mandalay, showing palace and temples of the last king.

in the region of the southwest monsoons, which come from the sea loaded with moisture. Consequently these peninsulas are abundantly watered and exceedingly fertile.

The **Monsoons** are so named from the Arabic word for *season*. For six months, including the winter, the winds come from the interior and are dry: these are the northeast monsoons. For the other six months, which are the summer months, the winds come from the sea and are moist: these are the southwest monsoons. They bring clouds and make the rainy season. The annual rainfall of India varies from 66 inches at the mouth of the Ganges, to 500 inches among the mountains.

3. Vegetation and Animals.—Besides the difference in amount of moisture, there is also a marked contrast between the vegetation and animals found in the country east and those found in the country west of the Hala Mountains.

On the east we find the teak, the bamboo, ebony, and banyan trees; cinnamon and other spices; the sweet-scented sandalwood, cotton, rice, and indigo; the tea-plant and camphor tree of China, the mango and the banana.

Here also are found, in the



The banyan tree is a very remarkable tree, some of whose branches grow downward and take root, as shown in the picture.

dense forests and jungles, the largest **animals**, such as the elephant, rhinoceros, and tapir, and some of the most ferocious, such as the tiger; serpents of the most venomous kind, and birds, such as the peacock, of the most brilliant plumage.

Tibet is the home of the **yak**, or grunting ox, which loves to roam above the snow-line.

On the **west** the teak and banyan are replaced by the oak and the ash. The peach, the olive, the fig, and other fruit trees, with the vine, the melon, and the rose, are natives of this region, and are found also in Europe.

Among **useful animals** found here are the camel and the dromedary (called ships of the desert), horses, cows, goats, and sheep.

4. Races and Religion.—Asia is occupied mainly by



The gates of the city of Lucknow.

two great races: the Caucasian, which inhabits Western Asia and India, and the Mongolian, which is found in Eastern Asia. The Malays occupy the Malay Peninsula and neighboring islands.

The yellow hair, blue eyes and fair skin so common among the Caucasians of Europe are replaced in the Caucasians of Asia by black hair and eyes and dark complexions.

In the valleys of western Asia the Caucasian race developed a high degree of civilization thousands of years ago. Families of this race built the great cities of Nineveh, Baalbek and Babylon, and founded the historic empires of the East. Our written history begins with them. From them we get our alphabet, our Arabic numerals, and the elements of algebra and astronomy. The Caucasians crossed the mountains into India in early times and founded empires there and built great cities which are now in ruins.



Interior of the palace of the Moguls, at Delhi.

Asia has been the cradle of all the prominent **religions** of the world. Christianity, Judaism, Buddhism, Brahmanism, and Mohammedanism all had their origin within its limits.

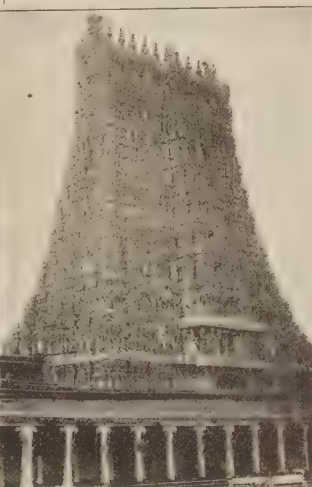
The last three are the prevailing forms of religion throughout Asia.

5. National Rank.—Several countries of Asia are the most populous in the world, but excepting Japan, there is not one that has risen to importance as a commercial or naval power.

6. Political Geography.—Large portions of Asia belong to Russia and Turkey. Not counting these, the countries of Asia may be divided into three groups:

I. The four native **independent** nations.

These are China, Japan, Persia, and Siam. Japan and Persia are limited monarchies, and Siam tends towards this form of government, while China favors the republican form. These countries embrace about one-third of the area of Asia, and nearly two-thirds of its inhabitants.



II. Countries **belonging** to foreign powers, as India, Burma, the Straits Settlements and French Indo-China.

III. Districts, such as Arabia and Afghanistan, which are occupied by **tribes** that have no responsible government.

7. Modes of Life and Civilization.—The Hindus, Chinese, and Japanese have attained a high degree of civilization.

The palaces, temples and tombs of India are of wonderful beauty.



Hindu Civilization: 1. A Brahmin temple at Madura, the sacred city of southern India, near Madras. The temple is 840 by 744 feet, and from the center of each wall rises a pyramid of nine stories, each story supported by sculptured figures. This is a picture of the principal pyramid, which is 152 feet high. 2. Brahmin college at Jeypora.

Review Topics.—The climate of the Northern Plain. Of Central Asia. The peninsulas. What portion of Asia is poorly watered? Why? Why are India and Indo-China well watered? Monsoons. In what directions and for how long do they blow? What makes the southwest monsoons? Name some of the plants found east of the Hala Mountains. Some of the animals. What plants and fruits are found west of these mountains? What animals? What races occupy most of Asia? Where do the Malays live? How do Asiatics differ from Europeans in appearance? What religions have originated in Asia? Has any native Asiatic empire ever been an important commercial or naval power? How may the States of Asia be grouped? Which of the Asiatic nations are civilized?

COUNTRIES OF ASIA.			COUNTRIES.			COUNTRIES.		
	Area in Sqr. Miles.	Population.		Area in Sqr. Miles.	Population.		Area in Sqr. Miles.	Population.
China and dependencies	4,300,900	426,047,000	Japan	177,359	50,006,000	Persia	635,163	9,000,000
Indo- } French Indo-China, etc.	256,463	15,922,000	British India, etc.	1,917,621	299,422,000	Asiatic Turkey	682,155	17,153,900
China- } Siam	244,798	6,320,000	Afghanistan	240,937	4,550,000	Arabia and Oman	954,826	1,950,000
Ceylon	25,449	3,608,000	Baluchistan	141,628	811,000	Asiatic Russia	6,655,759	20,950,000



This is a farm house in the great flood-plain near Sanghai.

LXVI. CHINA.

1. China occupies the central part of Eastern Asia. It includes China proper—with its dependencies, Manchuria, Mongolia, Tibet, and Sinkiang—and embraces an area larger than the entire continent of Europe.

The estimated **population** is about 400,000,000, or about one-fourth that of the entire globe. It is chiefly Mongolian.

2. China.—China consists of the great plains of the Hoang and the Yangtze rivers, together



Curling the tea leaves. One man is curling the leaves with his feet, the other is arranging them on pans to put in the sun to dry.



Assorting tea leaves after they have been dried.

with adjoining mountain regions. The **climate** is varied, and resembles that of our own country. The **soil** is fertile.

China is one of the oldest and most densely populated countries in the world.

The land is filled to overflowing with **people**. For want of dwelling space near large cities, no less than three millions of the people live in boats, which are arranged in streets on the rivers, as houses are on the land. Every available foot of land is under cultivation.

3. Mineral Wealth.—The Chinese coal-beds are among the most extensive in the world. Iron and salt, gold, silver, copper, quicksilver, lead, zinc, and precious stones abound. The deposits of porcelain clay are very large.

4. Pursuits and Productions.—Of all pursuits, agriculture is the most honored by the Chinese. The farmers have in many places cultivated the soil even into the roadways, so narrowing them that they have become hardly wider than footpaths.

Tea is the great agricultural staple.

Tea is the leaf of an evergreen shrub that grows about five feet high.

The leaves are picked by hand, rolled, and dried. The laborers are paid a few cents a day.

Cotton and the mulberry-tree are extensively cultivated. The culture of silk is as important as that of tea. Rice and millet are the chief articles of food.

The leading **manufactures** of China are silk, cotton, and porcelain.

Great use is made of the bamboo in building houses, boats, and bridges, and in making furniture and household utensils.

The Chinese are extensively engaged in **sea fisheries**.

Commerce.—China has a vast internal commerce.

This is carried on by rivers and canals, as most roads are passable only for carts and wheelbarrows. In the mountains donkeys are used, and in the deserts, the camel. Several thousand miles of railroads have been built, and all the principal cities of China are now connected with one another by telegraph. The Chinese and Russian lines together place Peking in telegraphic communication with Europe.

China is rapidly enlarging its **foreign intercourse**.

In former times the laws of China excluded all foreigners



Packing tea in bales at Tientsin.



Bringing tea over the mountains to market in western China.

from the country. For a long time the port of Canton only was open to foreign trade. Forty-three ports are now open, among them that of

Ichang on the Upper Yangtze, in the very heart of China. There is a great **caravan** trade between China and Russia, which has its rendezvous at Maimatchin. (See Trade Chart, pages 166 and 167.)

The principal **exports** are tea and raw silk. The chief imports from the United States are cotton cloth and yarn, kerosene, tobacco, and lumber. China has a large trade with Southern Asia, from which she imports vast amounts of rice.

5. People.—The Chinese are industrious, patient, economical, and ingenious.

They invented gunpowder and the mariner's compass, and have understood the art of printing, paper-making, and manufacturing "China" ware for ages. Their skill in the carving of ivory is marvelous.

The most famous public works are the **Grand Canal**, 700 miles in



View of the great Chinese wall.

length, and the **Great Wall**, 1,200 miles in length, from 15 to 30 feet high, and so broad that six men on horseback can ride abreast upon it.

It was designed as a work of defense against the invading **Tatars**



Steps leading down to the river at Hankau.

(*tah'tars*). It was completed more than two hundred years before the birth of Christ.

The Grand Canal was constructed over twelve hundred years ago.

6. Government and Religion.—The people, long under an absolute monarchy, now favor the republicanism.

Buddhism and Confucianism are the chief religions.

The important features of the latter religion are the worship of ancestors and obedience to the moral teachings of Confucius. It has no priesthood, but in nearly every home incense is kept continuously burning before tablets upon which are written the names of ancestors of the head of the household.

7. Education is eagerly sought for. In recent years hundreds of Chinese young men, and a few young women, have been sent to the United States and Europe to be educated.

At Peking an **Imperial College** of foreign knowledge has been established, to furnish instruction in the European languages and sciences.

8. Cities.—China contains more large cities than any other country in the world.

They are compactly built, and the streets are narrow. The temples and pagodas are very grand.

Pekin, about 100 miles from the sea, is the capital. It has a population of a million.

Hankau is on the Yangtze river, at its junction with the Han. There are really three large cities at this point, the others being Ianyang and Wuchang. Together they form the largest center of population in China. Hankau is famous for its learning, its manufactures of metal, and its export of tea.

Siangtan, a great teamart, is as large, and **Tientsin**, a great port, nearly as large, as Peking. **Fuchau** is the center of a large tea trade, and of cotton manufacturing. **Nankin** is the chief seat of learning.



Street scene in Hongkong. Notice the coolies with their broad hats and bare feet, and the jinrikishas in which people travel in that city.

Shanghai and **Canton**, the principal seaports, have an immense commerce.

At **King-te-ching** are great porcelain factories. They employ many thousand operatives. **Suchau** is famed for the beauty of its build-

ings and gardens, and manufactures silk. **Chang-sha** is the center of the silk business.

9. Manchuria is by far the richest dependency of China.

Southern Manchuria closely resembles China. Its hills are covered to their summits with luxuriant vegetation; its valleys yield abundant crops of maize, wheat, and millet; and the best tobacco of the empire is grown in its fertile fields.

In the west are extensive grassy prairies, and the inhabitants are nomadic herdsmen.

Northern Manchuria has an exceedingly cold climate. To it the Chinese banish pirates, robbers, and political offenders.



A street scene in Peking. Notice the cart in which an American passenger is seated.

It is peopled by **Mongols**, who are nomadic. They wander from one fertile spot to another, seeking pasturage for their flocks. The caravans between China and western Asia pass over this dreary desert.

11. Tibet occupies the highest part of the central plateau of Asia, and is a cold country.

The scanty population live chiefly in the fertile valleys, where they find pasturage for their vast herds of cattle and flocks of sheep and goats.

Lassa, the capital, is the residence of the Grand Lama, or head of the Tibetan government, and is the chief seat of the Buddhist worship. A monastery near by is the home of 7,700 priests. Lassa is a great trading center for all the neighboring countries. From December to March it is thronged by merchants.

12. Sinkiang is the name now given to the fourth and most remote outside Chinese province. It includes, with Chinese Turkestan and Sungaria, all of Chinese Central Asia between Tibet on the south and Mongolia on the north. Much of it is desert, with scattered oases.

Kashgar and **Yarkand** are the chief centers of trade—the former with Russian Turkestan and the latter with Kashmir across the Karakorum Pass.

Review Topics.—China and dependencies. Area. Population. China proper. Climate. Age and population. Boat population. Mineral wealth. Agriculture. Products. Chief food. Manufactures. Bamboo. Commerce. Caravan trade. Exports. People. Inventions. Famous public works. Government. Religion. Education. How are public offices assigned? Cities. Manchuria. Mongolia. Tibet. Population. Capital. Sinkiang. Kashgar and Yarkand. Kulja.



Chinese joss house or temple at Canton.

It is for China what Siberia is for Russia. The walled city of **Mukden** is the capital.

10. Mongolia is an arid region, embracing the larger part of the Desert of Gobi.



A farmhouse on the plateau of Tibet.

LXVII. JAPAN.



A water mill and Japanese village, with the famous volcano, Fujiyama, in the background. Between the first two buildings on the left is a water wheel which runs a mill.

1. Japan consists of four large islands, Honshu, Kyushu, Shikoku, and Yezo, together with the southern half of Sakhalin, and numerous smaller islands.

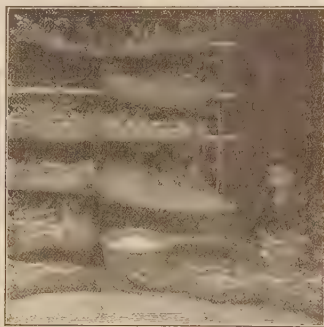
Its **area** and **population** are a little larger than the area and population of the British Islands.

The **coasts** are generally bold and rocky, and abound in convenient harbors.

The country is **mountainous**, and in many places volcanic. It is more subject to earthquakes than any other region.



Making raw silk in Japan. 1. The woman is feeding the silkworms with mulberry leaves.



2. After the worms are full grown they spin a cocoon about themselves; the cocoons are then plunged into boiling water to kill the worm, who would otherwise eat his way out and spoil the silk.

Fujiyama, with its majestic cone of snow, is an extinct volcano rising 14,000 feet above the sea. It was formerly an object of veneration.

Near Kyushu there is a small islet with a volcano, which, like Stromboli, in the Mediterranean, serves as a lighthouse.

2. Mineral Resources.—Japan is not rich in mineral resources; but copper and iron are abundant, and gold, silver, sulphur, and coal are mined. Mineral springs abound.

3. Climate.—The climate resembles that of our Atlantic seaboard, though it is somewhat milder, owing to the insular position of Japan.

At **Tokyo** the summer temperature ranges from 70° to 90°; in winter the snow seldom lies long.

4. Productions.—The principal crops are rice and tea. Rice is the chief article of food.

Among the productions are the tree from which the Japanese get the **gum** for their beautiful "Japan ware"; the **wax-tree**, from which they get a kind of wax for their candles—the manufacture of which is an important industry; and the **paper-mulberry**, from which they manufacture paper.

The chief **exports** are silk, rice, tea, camphor, copper, and cotton goods. The chief **imports** are iron and steel goods, machinery, flour, kerosene, and tobacco.

5. People.—In commerce, manufacturing, and general enterprise the Japanese are the most progressive of the Mongolian race. Since 1854 they have opened their ports to foreign trade and residents. Hundreds of steamers ply regularly between Japan and ports of our own and other countries.

In the manufacture of **porcelain** the Japanese are equal to any nation in the world; in certain kinds of metal work they excel all; their **silk** fabrics are of superior excellence; they make numerous varieties of **paper**, many of which are very beautiful. "Japan ware" is made by them alone.

They have adopted the best features of the military systems of modern nations, and have introduced post-offices, railways, and telegraphs.

6. The Government is a monarchy. The "Mikado" is aided by a Great Council. A constitution has been adopted.

7. Education.—Public schools have been established, and the education of boys is universal and compulsory. The Imperial University of Tokyo is an institution of high rank.



4. Packing the hanks of raw silk into bales, some of which are brought to Paterson, N. J., to be woven. (See page 47.)



3. The cocoons are put in warm water to loosen the fiber, which is then reeled off into hanks.

The Japanese used the art of printing long before it was invented in Europe. They have a literature of great antiquity and repute.

Many Japanese students are educated in Europe and the United States.

8. Religion.—There is no state religion. The people are largely Buddhists. Many, however, have become Christians.

9. Customs.—Many curious customs prevail.

Owing to the fact that the country is so subject to earthquakes, the **dwellings** are generally of wood. They are all built according to one of three or four plans; so that, in furnishing a house, you have only to go to the upholsterer and order mats and other articles for a house of one or other of these patterns.

The Japanese have no chairs, sofas, or beds; they use their clothes for bed-covering, and sleep upon the mats on which they sit during the day.

10. Cities.—The cities of Japan are numerous. **Tokyo**, the



Planting rice in Japan.

capital, is the largest city and the commercial metropolis. It is connected by railroad with **Yokohama**, the principal seaport.

Kyoto is an important seat of learning, and has extensive manufactures. **Osaka** is a center for all kinds of native manufactures. In social affairs and fashion, it is the Paris of Japan. In and near the city are hundreds of schools. Its canals are crossed by more than a thousand bridges.

Hakodate is the principal port of Yezo. **Nagasaki** is the port where Europeans were first permitted to reside as merchants.

11. Formosa, a fertile island off the coast of China, belongs to Japan. It exports largely tea and camphor.

12. Korea occupies the peninsula between the Sea of Japan and the Yellow Sea. It is under the control of Japan. Seoul ('sa-ool') is the chief city. The worship of ancestors prevails.

Education is held in high esteem, and, as in China, public officials are required to pass examinations. The Koreans are skilled in the manufacture of paper. Agriculture is the chief industry. Rice, grains of all kinds, and beans are cultivated. Rice, beans, and ginseng are exported.

Review Topics.—Of what does Japan consist? Area. The coasts. Surface. Volcanoes. Mineral resources. Climate. Productions. Exports. Imports. Character of people. Manufactures. Government. Education. Art of printing. Literature. Religion. Customs. Cities. Korea. Formosa.

LXVIII. INDO-CHINA.

1. Indo-China occupies the southeastern peninsula of Asia.

It includes **French Indo-China**, the independent native kingdom of **Siam**, also **Burma** and **Assam** of British India, and the **Straits Settlements**, having under their protection the **Malay States**.

The shores of Indo-China, during the prevalence of the southwest monsoon, are inundated by the violence of the sea.

There is also an immense fall of rain, causing an overflow of the rivers.

2. Minerals.—These countries are rich in minerals, including gold, tin, lead, copper, and zinc.

The **tin mines** of the Malay peninsula and the neighboring islands furnish nearly one-half of the world's supply of tin. The **ruby mines** of Burma are very celebrated. Petroleum springs are common.

3. Productions.—Rice, indigo, cotton, the sugar cane, tobacco, and the mulberry are extensively cultivated. The chief article of food is rice.

In the forests are found the valuable teak, the *taban*, which yields gutta-percha, the tree also which yields gamboge, with other dye-



Native quarter of Hanoi, the capital of French Indo-China.

woods, cinnamon trees, and the sweet-scented eaglewood, which is burned as incense in the heathen temples. Oil trees, from the nuts of which oil is extracted, abound in Burma.

The commerce of Indo-China with China and Japan is very large. Rice, sugar, raw cotton, and fish are exchanged for cotton yarn, tea, and manufactured goods. The chief exports are tin, rice, sugar, tobacco, cinnamon, and teakwood.



Elephants at work in the forests of Indo-China.

4. Animals.—The elephant, tiger, rhinoceros, leopard, and buffalo are all found wild in great numbers. The waters are alive with crocodiles, the forests with monkeys.

The **elephant** is used as a domestic animal. White elephants are very rare and very much honored. They are not permitted to work and are given separate houses from those of the gray ones.

5. Government and Religion.—The despotic native governments have given way to the beneficial control and influence of England and France. In religion the people are chiefly Buddhists.

In industry and intelligence they are very inferior to the Chinese on the one side and the Hindus on the other.

6. The English and French are rapidly developing the vast resources of Indo-China. They are introducing railways, telegraphs, post-offices, and schools.

7. Cities.—**Bangkok** is the capital of Siam, and the largest city on the peninsula.

Numbers of its people live in bamboo huts floating on rafts in the river.

Rangoon and **Mandalay** are the chief cities of Burma; **Singapore** is the chief city of the Straits Settlements; **Hanoi** is the capital and chief city of French Indo-China.

The last king of Burma, who was deposed by the British, lived at Mandalay, and you will find a picture of his palace on page 138.

8. The Malay Peninsula is occupied by the Straits Settlements (a British colony) and the Malay States (under British protection).

Review Topics.—What does Indo-China occupy? What does it include? The monsoon and the rainfall. Minerals. The tin mines. Precious stones. Petroleum. Principal productions. Chief article of food. Forest products. Oil trees. Exports. Commerce. Animals. Elephant. Government. Religion. Manners and customs. Foreign influence. Bangkok. Rangoon. Mandalay. Singapore. Hanoi. The Malay Peninsula. The Malays.



Many natives in Bangkok live in houses like these floating on the river.

LXIX. BRITISH ASIA.

1. British Asia comprises the great peninsula of India, together with Burma, Assam, the Straits Settlements, Ceylon, the Andaman and Nicobar islands, and other islands.

2. India.—On the northern border we find the vast range of the Himalaya Mountains.

At their southern base lie the great plains of the Indus and Ganges, one of the richest and most populous regions in the world. (See Physical Map, p. 135.) Still farther to the south rises the plateau of the Dekkan.

3. Productions.—The mineral wealth of India is not large.

Iron, gold, and precious stones are, however, found in considerable abundance, and much coal is mined.

The great productions of the country are **agricultural**. They are rice, wheat, cotton, jute, silk, opium, indigo, tea, sugar, and tobacco.

Millet and rice are the chief ar-



The preparation of tea in India. A furnace in which the leaves are withered and partially dried.

India raises vast quantities of **cotton**, which is the principal material for clothing. The sugar crop is immense.

Opium is made from the poppy, and the cultivation of this plant is an important branch of industry. It is largely chewed and smoked by the Chinese, Japanese, and the inhabitants of the East India Islands. The entire proceeds of the tea crop are said to be insufficient to pay for the opium annually brought into China and consumed there.



Making tiles at Mysore.

important caravan traffic with central and western Asia.

Internal commerce is rapidly developing by the aid of the **railways** that connect the principal cities and seaports. The large rivers are navigated by steamers.



Near Darjeeling, 8,000 feet above the sea. The mountains in the distance are the highest summits of the Himalayas.

having grown rich and powerful through its monopoly of this trade, achieved the splendid conquest which gave to England this most valuable of her possessions.

5. The **Inhabitants** number about 290,000,000. They are generally known as Hindus, though there is great diversity of race, language, manners, and customs among them.



Interior of a tea house.



Carts at the factory being loaded with tea for Calcutta.

They were formerly noted for their skill in the manufacture of textile fabrics.

The muslins of Dacca, the brocades of Benares, the embroideries of Delhi, long rivalled the products of the finest modern machinery. The shawls of Kashmir are still unsurpassed.

More than two thousand years ago India was the seat of an **empire** of vast wealth. Its wonderful antiquities and magnificent ruins, its extraordinary poetical and religious literature, tell in eloquent language of the grandeur of the past.

European civilization is now rapidly extending over the country.

The leading **religions** are Brahmanism and Mohammedanism. About two millions of the people have become Christians.

6. **Government**.—The King of England is "Emperor of India," and rules through a governor-general.



Bathing ghat at Calcutta.



The city of Lucknow.

The country is divided into twelve Presidencies, of which the most important are those of Bengal, Madras, Bombay, and the Northwest Provinces, each of which has a British Governor or President, subject to a Governor General and Council appointed by the British Government.

7. Cities.—**Delhi** is the capital of British India and the residence of the Governor-General. Delhi was also the capital of the ancient Mogul sovereignty. Its ruins cover forty-five square miles. It has a large trade in jewelry and cotton goods. **Calcutta**, the largest city of India, is the chief commercial city and seaport.

Bombay is noted for its splendid harbor. It is the great cotton port. **Madras** is an important center of foreign trade.

Murshedabad manufactures silks, carpets, and embroidery. **Patna** is the emporium of the trade in opium, indigo, and rice.

Benares, with its thousand Hindu temples and more than 300 mosques, is the most sacred city of the Hindus, and their chief seat of learning.

The Jumna and the Ganges are rivers sacred to all Brahmans. They meet at Allahabad (God's House), where multitudes of pilgrims go to bathe.

Lucknow, with its monuments, domes, and airy palaces, is like a fairy city.

In quelling the Indian mutiny of 1857, the heroic Havelock made it

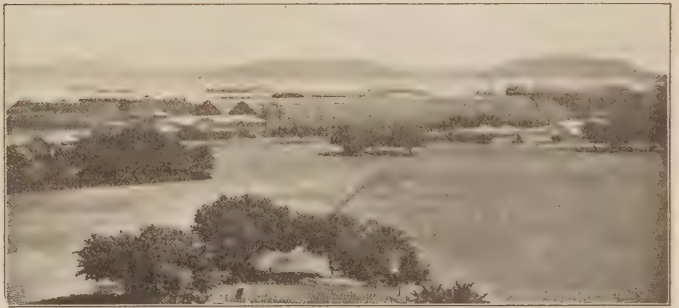


Weaving rugs in India. Notice the figures in the part already woven.

famous in Anglo-Indian history. (Read the history of this famous mutiny.)

8. Burma and Assam are the easternmost provinces of India. The productions of Burma resemble those of India. Teak, timber,

tea, and petroleum are the leading exports. Rangoon is the chief commercial town. Assam is a region of fruitful fields, orchards, and tea gardens.



View of the harbor at Bombay, a city of over 800,000 population.

9. The Straits Settlements consist of Malakka, Penang, and Singapore, with several protected native states.

Singapore is one of the leading tin markets of the world. It is an English town, on an island at the end of the Malay peninsula. Its fortifications command the Strait of Malakka, which is the great thoroughfare for steamers that ply between India and China.

10. Ceylon is a fertile and populous island, famous for its tea, its coffee, its pearl fisheries, its cinnamon groves, and plum-bago.

Tea is the most important production and is of the finest quality. Pearls are found inside the shell of the pearl-oyster. Cinnamon is the bark of a kind of laurel. The cinnamon and coffee tree grow wild upon the island. Cinchona, cacao, and cocoanuts are also exported.

Colombo is the capital and chief port for foreign trade.

11. On the slopes of the Himalayas are the independent states **Nepal** and **Bhutan** and the native principality of Kashmir.

Kashmir is celebrated for its floating gardens, its roses, and its fine shawls woven from the wool of the Kashmir goat.



The Vale of Kashmir, a beautiful valley in the Himalayas.

Review Topics.—What does British Asia comprise? India. Physical features. Mineral wealth. Products. Rice. Cotton. The sugar crop. Opium. Jute. Maritime commerce. Caravan trade. Internal commerce. Canals. Chief exports. Imports. The East India Company. Inhabitants. Their skill. Condition of India one hundred years ago. Religions. Government. How is the country divided? Calcutta. Bombay. Madras. Murshedabad. Patna. Benares. Allahabad. Delhi. Lucknow. Burma. Productions. Chief town. Assam. Straits Settlements. Singapore. Ceylon. Products. Independent states.

LXX. AFGHANISTAN, BALUCHISTAN, PERSIA, AND ARABIA.

1. Afghanistan and Baluchistan.—Afghanistan and Baluchistan occupy the eastern portion of the Plateau of Iran, and are for the most part desert. Some of the mountain valleys are, however, well watered and fertile.



Afghan women. Notice the shawls over their heads. From these the afghan, worn by ladies, takes its name.

The chief caravan routes between India and western Asia lie through this region, which is separated from India by the Sulaiman and Hala mountains.

The two great passes through these mountains, the **Khaibar Pass** leading to Kabul, and the **Bolan** leading into Baluchistan, may be called the northwestern gates of India. The Bolan Pass is a wild gorge about fifty miles long, walled in by precipitous rocks. In 1839 a column of the British army took six days to traverse it.



Women of the working class weaving a Persian carpet.

The principal depots of the caravan trade are **Kabul**, **Herat**, **Kandahar**, and **Khelat**. Kabul, on the Kabul river, is the capital of Afghanistan, Khelat of Baluchistan.

England and Russia are rivals for the control of the commerce of these countries. England has built railroads as far as New Chaman and Peshawar in the south, and a Russian road has nearly reached Herat.

2. Persia.—Persia occupies the western part of the Plateau of Iran.

It is a dry country, requiring for the most part artificial irrigation; but wherever there is water, the hills and valleys are clothed with waving wheat or fragrant roses, and the pastures are covered with flocks and herds.

Water is conveyed to the plains from the mountain springs or streams by long underground aqueducts called *kenats*.

The climate of Persia generally is one of great extremes. The summers are intensely hot, the winters bitterly cold. The region bordering the Caspian Sea has a comparatively mild climate.

These valleys are inhabited by a settled population, but the country generally is peopled by warlike nomads, who raise camels, horses, goats, and sheep on the good pasture lands.

Most of Baluchistan is now under the control of Great Britain.



One of the summer homes of the Shah of Persia.

3. Productions.—Silk is the most important production. The other products are cotton, tobacco, opium, drugs, wool, wine, minerals, naphtha, salt, and the turquoise.

The artisans of Persia are skilled in various branches of industry, especially in the manufacture of silks, shawls, carpets, and small-arms.

The chief exports are cotton, silk and silkworm eggs, opium, carpets, dried fruits, and pearls.

In these dry countries the fruits, such as grapes, peaches, pears, apricots, nectarines, plums, cherries, figs, pomegranates, and melons—both canteloupes and watermelons—are unsurpassed.



A port in Persia on the Caspian Sea where caravans from Teheran and other Persian cities meet. Notice the packages of merchandise piled up in front of the warehouses and the Persians watching the steamer as it approaches.

4. Government.—Persia is one of the oldest monarchies in the world. The ruler is called the Shah, and is a Mohammedan.

Western civilization is finding its way into this country. Telegraphs and post-offices have been introduced.

5. Cities.—

Teheran is the capital. **Tabriz**

is an important center of caravan trade between Persia and India on the one hand and Turkey and Russia on the other.

Ispahan, once the capital, is an important center of trade.

Meshed, the holy city, manufactures carpets and shawls; **Bushire** on the Persian Gulf, has important commerce with European countries.

6. Arabia.—Ara-

bia is a great plateau. It has three natural divisions, nearly equal in size: a central mountainous region; a desert belt encircling this; a narrow coast plain.

Central Arabia contains many towns and villages. Its valleys are exceedingly productive.

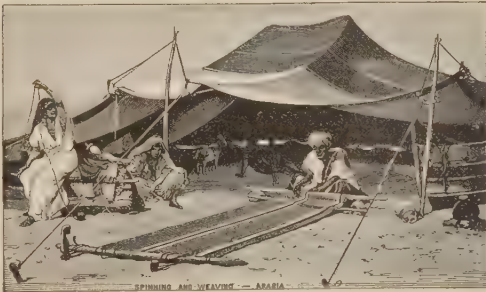


A Persian village.—The men and women are weaving mats.

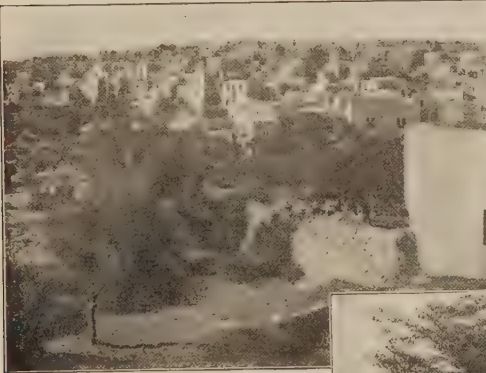
The desert belt

has a scanty vegetation which furnishes food for the goats and camels of the Bedouin or wandering Arabs. Here and there groves of the date-palm mark the fertile spots, or oases. The desert is often swept by the dry and scorching wind which is called the simoon. The **coast plain** contains fertile districts which yield coffee, dates, figs, grapes, fragrant gums, and spices in great profusion.

The **exports** are coffee, dates, camels, horses, pearls, and wool.



This is the home of an Arab family of Bedouin. The man is weaving cloth for a tent. The woman is spinning.



Bethlehem.

Off the island of Bahrein, in the Persian Gulf, is one of the most noted **pearl fisheries** in the world.

7. Government.—Arabia is divided into several petty

Review Topics.—What countries occupy the eastern part of the Plateau of Iran? Describe the country and inhabitants. Caravan routes. Mountain passes. Bolan Pass. Chief cities. What country occupies the western part of Iran? Describe it. Kenats. Climate. Productions. Artisans of Persia. Chief exports. Fruits. Government. Modern civilization. Teheran. Tabriz. Ispahan. What is Arabia? Natural divisions? How much of the country does each division occupy? Central Arabia. Desert belt. Coast plain. Exports. For what is Bahrein noted? How is Arabia governed? Principal states. Yemen and Hedjaz. Mecca. Medina. Pilgrimages. Sana. Mascot.

LXXI. ASIATIC TURKEY.

1. Asiatic Turkey includes Anatolia, Armenia, Syria, Mesopotamia—the low plains of the Tigris and Euphrates—and the western coast of Arabia (see map, p. 113).



Jerusalem.

These provinces constitute the most important part of the Turkish Empire.

Anatolia, Armenia, and Syria contain **fertile valleys**, where the vine, olive, mulberry, poppy, cotton, wheat, tobacco, and fruits yield large crops. The plains of **Mesopotamia** are covered with vegetation during the rainy season, but become dry and barren during the summer.

Asiatic Turkey has great natural resources. An oppressive government is the chief obstacle to prosperity.

The leading **exports** are raisins and figs, olive oil, opium, silk, wool, goat's hair, sponges, and valonia, used for tanning, dyeing, and ink-making.

2. Government.—Each province is controlled by a governor appointed by the Sultan. The **inhabitants** are Mohammedans, Christians, Jews and Gypsies.

3. Palestine, or the Holy Land, in southeastern

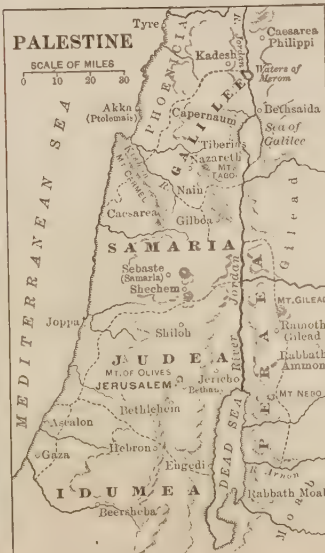
Syria, is famous as the scene of many events recorded in the Bible. Much of the surface along the Mediterranean is level, but the interior of the country is mountainous. East of the mountains are the Sea of Galilee, the River Jordan, and the Dead Sea.

Here are **Jerusalem**, the ancient capital of the Jewish nation; Bethlehem, the birthplace of Jesus; Bethany, Nazareth, and many other places; all having sacred memories of the life and teachings of Christ.

Sponge and coral fisheries on the coast are important sources of Syrian commerce.



On the banks of the River Jordan



A valley in the mountains of Arabia.

states under separate rulers.

Nedjed, Shomer, and Oman are the most important. **Yemen** and **Hedjaz**, fertile districts on the western coast, are Turkish provinces. Hedjaz contains the holy cities of the Mohammedans—**Mecca**, the birth-place of "the prophet," and **Medina**, his burial place.

Every Mohammedan tries to make a **pilgrimage** to these cities once in his life. Enormous caravans visit them every year. The pilgrims come from motives of religion and commerce. Traders from Mohammedan countries meet at Mecca and exchange their commodities.

Sana in Yemen is famed for its trade in Mocha coffee. **Mascot**, the capital of Oman, is an important center of commerce.



Smyrna, the principal seaport of Asiatic Turkey.

Sponges are animal productions, living in water from 30 to 150 feet deep, and attached to rocks or shells. They are gathered by divers.

Smyrna is the great port of Asiatic Turkey. **Damascus**, the oldest city known, and **Bagdad**, are centers of a great caravan trade. **Beirut** is the port of Damascus.

Aleppo is a great rendezvous of caravans from Persia and India.

Brusa is an important emporium, famed for its delicate fabrics of silk.

Review Topics.—What does Asiatic Turkey include? What do these constitute? Products of the valleys. Of the river plains. Why is not Turkey prosperous? Exports. Caravan trade. Government. Inhabitants. What does Syria contain? Products of the sea. Sponges. Cities.

LXXII. ASIATIC RUSSIA.

1. Asiatic Russia.—Asiatic Russia embraces all of northern Asia, and extends from the Black Sea to the Pacific Ocean.

It includes Siberia, Transcaucasia, and Russian Turkestan.

2. Siberia.—

Siberia is larger than all Europe, while its population is only a little more than that of the Netherlands.

3. Surface.—

More than half of Siberia lies in the great northern plain. That part bordering the Arctic Ocean is a level swamp, called the **tundras**.



Siberian railway station.

The mouths of the great rivers that cross this region freeze very early every winter while the water is still flowing in their upper courses. This floods the tundras, and a little later they freeze, making a solid ice sheet over which the natives travel on sledges. In summer the ice thaws and the tundras become impassable swamps overgrown with coarse grass.

The central part is rolling and covered with forests which are a part of a great forest belt extending from the Baltic to the Pacific. The southwestern part consists of a low and dry plateau called the **steppes**. Southern and eastern Siberia lie in the mountain region of the continent.

4. Climate.—The climate in the north is intensely cold; in the central and southern sections the winters are not so cold, and the summer heat is intense.

5. Rivers.—The chief rivers are the Ob, the Yenisei, and the Lena, which cross the central plain from south to north, and the

Amur, which cuts its way through the mountains and flows into the Okhotsk Sea.

These rivers are all navigable, but their mouths being frozen over for the greater part of the year they are of no value to foreign commerce. Their upper courses, connecting canals and Lake Baikal, furnish waterways for local trade in the interior.

6. Products.—The products are small in comparison with the vast extent of the country.

The forests are the homes of fur-bearing animals, and their furs are an important product.

Agriculture.—The southern half of the great plain is a rich agricultural region, which has developed rapidly since the building of the railroads. Large crops of wheat, rye, and oats are produced; on the steppes, the great grazing region, are vast numbers of sheep, horses, cattle, and camels.

Minerals.—The mountain regions are rich in emeralds, rubies, gold, silver, platinum, copper, and iron. The mines, as a rule, belong to the Czar, and are worked by convicts, most of whom are sent from Russia.

The manufactures are not important. They include metals, woolen goods, leather, and lumber products.

7. Population.

—The population at one time consisted chiefly of exiles and convicts from Russia, government officers, and a few barbarous natives. Since the building of the



The first train on the Siberian railway.

railroads several million persons have come in from Russia.

The Kirghiz of the steppes live in tents and roam from place to place with their flocks and herds. They are ignorant but hospitable.

8. Trade.—The exports are furs, the products of the mines, and fossil ivory, which is found all over northern Siberia.

This **ivory** is the tusks of animals called mammoths, which became extinct before the history of man begins. They were twice as large as an elephant and were covered with wool and long hair. Not long ago the body of one of these animals was found frozen up in ice, where it had been preserved for ages. The flesh was in such good condition that a party of explorers cut it up and fed it to their dogs.

Most of the imports come from Russia; but we sell Siberia farming utensils and steel.

Trade Route.—An extensive trade is carried on between Pekin and



Siberian farming scene.

St. Petersburg through Siberia. Formerly the supply of tea for Russia was transported on the backs of camels from Pekin to Maimatchin and Kiakhta, and thence through Irkutsk, Tomsk, and Tobolsk to St. Petersburg by boats on the rivers in summer, and in winter by sledges drawn by dogs or reindeer. The transit occupied six months. The Trans-Siberian railroad has changed all this. (See Trade Chart, p. 166.)



View of the harbor of Vladivostok.

are many refineries, and the oil is sent out to all parts of Europe and Asia.

11. Russian or Western Turkestan embraces the larger portion of the territory lying between the Caspian Sea and the Altai Mountains, and extending south to Afghanistan and the northern border of British India.

It is dry and includes deserts of sand dunes. The river valleys are fertile, and when water can be found for irrigation, the land produces large crops of corn, wheat, and cotton.

12. Products.—Russia has built railroads into the country from the Volga and from the Caspian Sea and has established a system of irrigation. These have increased the productions

of the section, and a million and a half bales of cotton are shipped to Russia annually. Large quantities of silk and wool are exported.

13. Population.—The population is made up of many races, most of which belong to the Mongolian family. The Kirghis, the Kalmuks, Tatars, and some others lead a wandering life. Others live in towns and on farms.

14. Government.—The whole country is subject to the Czar, but Bokhara and Khiva are under native rulers who recognize him as their sovereign and pay an annual tribute.

9. Cities.—Vladivostok, the only seaport of Siberia, is the eastern terminus of the great railway across the continent. It has a good harbor, which is kept open by huge steamers built to break the ice. Our trade with the country goes through that port.

Irkutsk is the chief city of Eastern Siberia; Tomsk of Western.

Barnaul is a large mining town containing one hundred and twenty smelting furnaces.

Tiumen is extensively engaged in the manufacture of Russia leather and woolen fabrics. Omsk and Tobolsk are important towns.



Making violin strings in the old city of Bokhara.

10. Transcaucasia, formerly Georgia, lies on the south side of the Caucasus Mountains. The valleys are fertile. The principal products are the mulberry, the vine, and cotton.

The people, who are celebrated for their handsome features, belong to the Tatar (*tah'tar*) race. They are skilled in the manufacture of silks, carpets, and metal goods. Tiflis is the capital and chief city.

The region about Baku is famous for its wells of petroleum. There



Caravan crossing the great desert of Russian Turkestan.

Cities.—Tashkend, the chief city and residence of the Russian Governor, is the terminus of

two railroads. It is a very old city and a great trade center.

Bokhara, on the railroad, is a famous seat of Mohammedan learning and the center of a caravan trade. It is famous for its ornamental leather.

Khiva is the center of a grazing and cotton section. All these cities manufacture cotton, silk, and leather goods.

Samarkand was the capital of Timour the Lame, or Tamerlane, the Tatar conqueror of western Asia. He conquered Syria, Russia, and overran India as far as Delhi. This city was taken and a hundred thousand of the inhabitants put to the sword. He defeated the Turkish Sultan of Constantinople in 1402, and afterward died while preparing for the conquest of China.

Review Topics.—Asiatic Russia. Divisions. Area of Siberia. Northern portion. Central. Southern. Products. Mineral wealth. Population. Occupation. Trade. Cities and towns. Transcaucasia. Products. People. Tiflis. Baku. Petroleum. What of Turkestan? Surface. Products. Population. Government. Cities.



MAKING POTTERY.—BOKHARA.
Making pottery at Bokhara.



Tiflis, the capital of Transcaucasia

AFRICA.

LXXI. PHYSICAL FEATURES.

1. Africa, chiefly in the Torrid Zone, is noted for its deserts, its magnificent rivers, luxuriant vegetation, and barbarous races.

This continent ranks next to Asia in size and is joined to it by the narrow isthmus of Suez. Its long **coast line**, unlike that of Europe, has few indentations.

2. Surface.—Africa is a vast plateau from 1,500 to 5,000 feet high, and surrounded by a belt of low, marshy, malarious land, varying in width from a few miles to two hundred.



The Atlas mountains in Algeria.

MAP STUDIES.—What sea on the north? On the northeast? What connects these two seas? In what latitude is Africa? What parallel crosses the northern part? What cape forms the eastern extremity? The southern? The western? Where does Africa approach nearest the mainland of Europe? What strait separates it from Europe? Where is the Cape of Good Hope? Why was it so named? What large island off the eastern coast of Africa? What groups of islands northwest? What islands in the Gulf of Guinea? At the mouth of the Gulf of Aden? Off the eastern coast? Is the coast line of Africa regular or indented? What gulfs do you find on the northern coast? What bays on the eastern? On the western?

Surface.—Where are the African highlands? What is their direction? What lakes do they contain? What three great rivers have their sources in these? What mountains along the northern coast? Along the southern coast? What plateau north of the Gulf of Guinea? Where are the Kamerun Mountains? What desert region in the south? In the northeast? Where is the Sahara or Great desert? What two high mountains near the equator?

Lakes and Rivers.—Which is the longest river in Africa? Which two flow into the Atlantic? Describe the course of the Nile. Name four large lakes south of the equator? What river drains central Africa? (There are falls and rapids in its lower course around which a railroad has been built.) Where is Lake Chad? Why has it no outlet? Describe the Orange river. The Vaal. The Senegal. The Limpopo. What tributaries has the Nile? In what plateau do they rise?

Climate.—In what zones is Africa? In what wind belts? Along which coast are the highest mountains? How does this affect the climate of the interior? Explain why the northern part of Africa has little rain. Account for the Kalahari desert. What parts of Africa are in reach of the westerly winds (see wind chart, p. 166)? What of the rainfall in these parts? Why is northeastern Africa desert, while southeastern Africa has abundance of rain?

The highest mountains are situated eastward and westward of Victoria Nyanza. On the west is Mount Ruwenzori, about 19,000 feet high, the highest peak of several which were anciently



The Suez Canal.

called the "Mountains of the Moon." On the east are the peaks of Kenia and Kilimanjaro, more than 19,000 feet high. They are the highest in Africa, and are above the snow line.

The other important ranges are the Atlas, on the north, the Kamerun, on the western coast, and the Snow Mountains on the south.

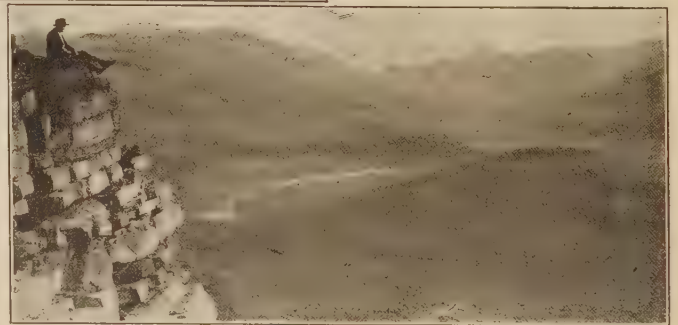
The peak of Teneriffe is a celebrated volcano on one of the Canary Islands; it is 12,182 feet high, and the winds at the top and bottom often blow in contrary directions.

3. Deserts.—The great Desert of Sahara, the Libyan and Nubian deserts in the north, and the Kalahari Desert in the south, though barren themselves, contribute largely to the productiveness of the more favored portions of the continent.

The Atlantic slopes and the region



The Libyan Desert near Cairo, showing the great pyramids at Ghizeh.



The South African plateau in Cape of Good Hope.

Productions.—What tropical fruits are found in the northern part of Africa? In what parts are palm trees found? What farm products are raised in Egypt? In South Africa? In what parts do coffee and cotton flourish? Where is ivory found? What section produces cloves? Sugar? Ebony? Gold? Gums? In what parts is the elephant found? What animals are common in the Sudan region? What minerals are found in the southern part? In the desert? What are the productions of Madagascar? Of the Azores and Canary Islands? Of Socotra Island? Of Mauritius and Reunion Islands? In what section is the tsetse fly found? The crocodile? The lion? Monkeys and parrots? The rhinoceros? What regions raise sheep and goats? Cattle?



of the Cape owe their fertility to these deserts. The hot sun so rarefies the air that **vapor-laden winds** are drawn in from the sea. Rising to the cool tops of the coast mountains, the vapor is condensed and yields a considerable rainfall.

4. Rivers and Lakes.—Africa is the driest of the continents. There are, however, great rivers, such as the Nile, the Niger, the Kongo, and the Zambezi. The Nile and the Kongo are the most important, and are among the longest in the world.



The River Nile.

MAP STUDIES.—What two nations control the larger part of Africa? What colonies border the Gulf of Guinea? The Red Sea? The Mediterranean? What lakes border German East Africa? What part of Africa belongs to Turkey? In which part are the most railroads? What colonies border the Indian Ocean? What state in the central part of Africa? Through what divisions does the Nile pass? The Niger? What countries are separated by the Kongo river?



A commercial station on the Kongo River at Stanley Pool.

Region of the Nile.—What is the source of the Nile? What possessions on the west of Egypt? On the south? What cities at the extremities of the Suez Canal? Where is Alexandria? Damietta? Cairo? Assouan? Near what circle is the first cataract of the Nile? What important city at the junction of the two Niles? How could you travel from Khartum to Cairo? From Berber to Suakin? What are the products of the upper Nile region? What cities in the Egyptian Sudan? Where is Fashoda? El Fasher? What is the capital? Describe the surface of Abyssinia. What is the capital? Locate Harar. With what seaport is it connected?

The Barbary States.—Which of these states belong to Turkey? To France? Which is independent? What mountains cross Morocco and Algeria? How do they affect the climate? Where is Tunis? What caravan routes center at Tripoli? Through what oasis do they lead? Name the capital of each Barbary State. Locate Tangier, Oran, Constantine, Murzuk, and Mekinez.

The Sahara, Sudan, and Belgian Kongo.—What is the extent of the Sahara from east to west? From north to south? How does it compare in size with the United States? Name some of its oases. Which of them produce salt? What town north of the bend of the Niger? What caravan route passes through it? To what nations does the Sudan belong? What waters form part of the boundary of the Belgian Kongo? What branches of the Kongo pass through it? Where are its highlands? What is its capital and seaport?

The Western Coast.—Name the British colonies on this coast. The French. The German. The Portuguese. Name the capital of each colony. Locate Lagos, Bathurst, Loanda, Windhoek, Libreville, Monrovia and Freetown. What are the divisions of Nigeria? What are the chief productions of the western coast?

Southern Africa.—To what nation does the greater part of it belong? What two other nations control part of it? Name the British possessions in South Africa. What is the capital of Cape of Good Hope? Of the Transvaal? Of the Orange Free State? Where is Swakopmund? With what

The Kongo is the largest river in Africa, from eight to ten times broader than the Mississippi. With its tributaries it affords about four thousand miles of navigable waterways.

Victoria Nyanza, Albert Nyanza, Albert Edward Nyanza, and Tanganyika are among the largest **lakes** in the world. The first three are drained by the Nile. (*Nyanza* means lake.)

5. Climate.—Africa is the hottest of all the continents. The climate, however, varies in different parts.

The **northern portion** lies in the region of the northeast trade-winds; and these, coming from the dry plateau of Arabia, are rainless and hot. Eggs may be baked in the sands of Nubia.

Central and Southern Africa are largely in the region of the southeast trades. These come from the Indian Ocean and are laden with moisture, which is condensed above the snowy mountains of equatorial Africa, and, falling as rain or snow, feeds the great lakes and rivers of the continent.

6. Vegetation.—The Equatorial regions of Africa form a belt of fertile country, marked by luxuriant tropical vegetation, similar to that of South America.

On each side of this broad belt are grass lands and **prairies**; those of the Sudan on the north, and on the south the country of the Zambezi.

Beyond these again, both north and south, are the **dry** and **sandy** regions of the Sahara and Kalahari, while the extreme



A view of the River Niger, with native boats in the foreground.

interior city is it connected? Locate Johannesburg. Salisbury. Kimberley. Pretoria. Durban. Bloemfontein.

Eastern Coast.—What colonies border on the Indian Ocean? On the Red Sea? On the Gulf of Aden? What city at the mouth of the Zambezi? What port on Delagoa Bay? Where is Sofala? Zomba? Mozambique? Dar-es-Salaam? Zanzibar? Juba? What French colony on the Strait of Bab-el-Mandeb? What is the capital of Madagascar?

COUNTRIES.	Area in Sq. Miles.	Population.	COUNTRIES.	Area in Sq. Miles.	Population.
Morocco	176,062	7,000,000	Italian Possessions...	197,291	781,000
Algeria	343,629	4,802,000	Portuguese Posses'ns.	799,651	6,310,000
Tunis	64,623	1,800,000	German Possessions...	916,975	11,465,000
Tripoli	405,791	1,000,000	Spanish Possessions...	82,124	315,000
Egypt	247,876	11,287,000	Cape of Good Hope...	276,988	2,410,000
Abyssinia	311,880	8,330,000	Transvaal	114,286	1,345,000
British East Africa ..	433,214	4,908,000	Orange Free State...	48,340	387,000
French West Africa...	680,617	12,700,000	Natal	34,710	1,109,000
French Equatorial Af.	680,308	8,500,000	Rhodesia, etc.	722,420	2,744,000
Belgian Kongo	926,872	19,000,000	Other Brit. Posses'ns.	530,961	26,993,000
Madagascar	228,610	2,619,000	Liberia	36,834	1,000,000





A coconut palm and other tropical vegetation in an African forest.

northern and southern portions of the continent are regions of extraordinary productiveness.

On the Atlas range and the northern borders of the Sahara is the "land of the date," and on the highlands of

Abyssinia are extensive forests of the coffee-tree. The gigantic baobab, the acacia, oil-palm, sugar cane, coffee, tobacco, and cotton, are found from the Sahara to the Zambezi.

The date-palm supplies a large portion of the inhabitants with food.

The oil-palm yields palm oil, and the acacia produces gum-arabic.

The palm is the most useful tree in the world. It furnishes timber and fiber from which dwellings and clothing are made, as well as fruit, oil, and wine.

7. Animals.—Strange and ferocious animals are found in great number and variety in Africa.

It is the home of the elephant and rhinoceros, the lion and the leopard, the crocodile and hippopotamus, and those strange animals, the gorilla and chimpanzee, that bear such a strong resemblance to the human form.

The ostrich buries her eggs in the sands of the deserts; the zebra and giraffe, the antelope, and the swift-footed gnu, roam over the plains.

A great plague of central and southern Africa is the tsetse fly, which resembles our common house-fly. Its bite is fatal to horses, and sometimes to cattle, though harmless to man. In all the region between Sudan and Cape Colony, bales of goods and other merchandise are transported on the heads of negro carriers. Only to a very limited extent have roads been made on which beasts of burden could be used.

8. Inhabitants.—The northern portion of the continent is inhabited by Berbers, Arabs or Moors, and Egyptians.

The Sudan and the region south of it, including the Kongo Basin, is the "land of the blacks." Some of them till the soil and raise cattle, others have skill in tempering steel and working gold, but they are generally exceedingly ignorant and degraded. They believe in witchcraft and worship idols.

South of the Zambezi river are found the Kaffirs and Hottentots, and in the Kalahari Desert the Bushmen, who live in caves like wild animals. It is said that the Bushmen cannot count beyond the number two.

9. Political Geography.—Egypt, Tripoli and Barca pay annual tribute money to Turkey. Egypt, however, is very largely controlled by the British. Nearly all the rest of Africa is owned or controlled by European governments.

Morocco is governed by its own despotic sultan, and Abyssinia, by its own absolute king. The Belgian Kongo is governed as a colonial possession of Belgium. Liberia is an independent negro republic. Regions controlled and protected by European countries are described as "spheres of influence."

Less than two million square miles of African territory, out of a total of eleven and a half million, are non-European.



Partly civilized Kaffirs.

Review Topics.—Location of Africa. Rank. Coast line. Surface. Highest mountain ranges. Other important ranges. Deserts. Effect on climate. How does Africa compare with the other continents in regard to moisture? What is said of the Nile and the Kongo? Climate of northern portion. Climate of Central and Southern Africa. Vegetation in the equatorial regions. In the Sudan and the Zambezi countries. Abyssinia. Products. The date-palm. The oil-palm. The acacia. Animals of Africa. Inhabitants. Government.

What States are independent? Which of these are governed by native rulers? Which state is a republic?

LXXIII. REGION OF THE NILE.

1. Egypt.—Egypt occupies the lower part of the Nile valley. The upper valley, south of the 22d parallel, is governed jointly by England and Egypt. It is called the **Anglo-Egyptian Sudan**, and is inhabited mainly by native Arabs.

An uprising was provoked among them in 1882, by the attempts of the Egyptians to take possession of the country. Under a leader whom they called the "Mahdi," or prophet, the Arabs routed an Egyptian army and cut off and massacred General Gordon and his men at Khartum. But the Mahdi was defeated and killed in 1898 by an army under General Kitchener, and the entire Nile valley is now under the control of England and Egypt.

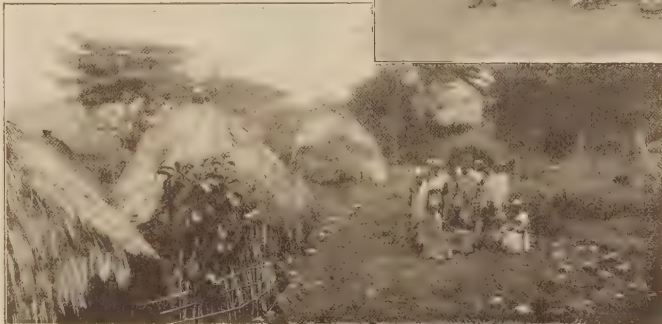
2. The Nile.

—The Valley of the Nile is in a rainless region. Except in the Delta, rain rarely falls, and a cloud is seldom seen.

For more than 1,200 miles in its lower course the Nile does not receive a single tributary.



Manufacture of water-jars. Nile boats carrying them to market.



Native village in Kamerun.—The natives are dressed for Sunday.



Egyptians.

At certain seasons, however, among the mountains of Abyssinia and the equatorial region, from 2,000 to 3,000 miles distant, the rains pour down in torrents. The Nile is swollen by this rainfall and overflows its banks. Late in June the descending flood reaches Lower Egypt, and the river gradually rises until the country becomes a vast inland sea. By the end of November the waters subside, leaving a rich sediment which covers the land and renders Egypt one of the most fertile regions on the globe.

In olden times it was the granary of the world, the home of learning, and the seat of political power. More than 5,000 years ago the Egyptians were a highly civilized people. The ruins of their temples and pyramids are unrivalled for grandeur; while the paintings on the walls of their tombs, as bright to-day as when executed by the artist, show that they had made wonderful progress in the fine arts.

3. Productions.—The leading productions are cotton, grains, and sugar. Beans, flax, millet, and dates are grown in large quantities.

4. Commerce.—Egypt has a large trade with Europe, especially with Great Britain. Four-fifths of her exports consist of raw cotton. Other exports are grain, vegetables, sugar, and tobacco. Her imports are cloth, hardware, lumber, and coal. The only manufacturing industry of importance is cigarettes, which are made at Cairo out of tobacco brought from Turkey. The lack of fuel and minerals makes farming a more profitable industry.



Market place at Cairo, where produce is brought on donkeys and camels to be sold. The little sheds are bazaars where goods are sold.



The columns of the great Egyptian temple at Karnak. The inscriptions can now be read.

The Suez Canal, 87 miles long, connects the Red Sea with the Mediterranean. It forms a short and important route for commerce between Europe and Asia. It accommodates vessels drawing 25 feet of water.

5. The Population of Egypt is over 11,000,000. It consists mainly of Arabs and Copts. The prevailing religion is Mohammedanism. The people are ignorant and superstitious.



Temple of Ramses the Great, at Thebes. Notice how it was buried in the sand and is now partly excavated.

6. Government.—The government is a constitutional monarchy. The ruler is called the **Khedive**, which means prince.

He pays an annual tribute of about \$3,500,000 to the Sultan of Turkey.

England has great influence in Egyptian affairs. The commander of the army is an Englishman. The steamboat, railway, post-office, and telegraph have been introduced.

7. Cities.—Cairo, the capital, is the largest city of Africa and a great center of trade. Alexandria is the principal seaport and commercial city of Egypt. Port Said and Suez owe their importance to their location at the extremities of the Suez Canal.

Siout is an important center for the caravan trade with the Sudan.

8. The Egyptian Sudan is more than twice as large as Egypt, and is divided into twelve provinces, each under a separate governor. The capital of the entire country and the seat of British authority is **Khartum**, at the junction of the Blue and White Niles.

The northern part of the country, formerly called **Nubia**, is a region of arid steppes, but south of Khartum are valuable forests of ebony, rubber, gum, and bamboo trees and fertile plains yielding cotton, grain, and vegetables. The caravans bring ivory, gold, ostrich feathers, gums, and skins from the interior and exchange them for tools, cloth, weapons, and various utensils which they sell to the natives. There is a railroad between Khartum and the Nile Delta, and also one from Berber to Suakin and Port Sudan on the Red Sea.

9. The People are negroes and Arabs. Schools are being established among them, and there is also a college at Khartum named in honor of General Gordon, in which instruction in literature, science, and the mechanic arts is given. There is also a training school for teachers.

10. Abyssinia consists of three regions of elevation.

The two lower are marked by tropical vegetation. The uppermost is a grazing district.

The country is rich in gold, iron, and salt. Coffee, ivory, and gold are exported. Cotton, woolen goods, cutlery, and other manufactures are the imports.

The people are of the white race, and profess the Christian religion. They belong to different tribes who are frequently at war with one another. The capital of Abyssinia is composed of huts and tents, and is moved from place to place to secure supplies of food and firewood.

Review Topics—Location of Egypt. Name other countries in the Nile region. What is said of the Nile? Of the old Egyptians? Leading productions. The commerce of Egypt. Exports. Suez Canal. Population. Prevailing religion. Copts. Government. Alexandria. Port Said. Suez. Siout. Egyptian Sudan. Abyssinia. Minerals.



A street in the Arab quarter of Cairo. The bay windows open into the women's apartments, enabling them to look out without being seen.

LXXIV. THE BARBARY STATES.

1. Morocco, Algeria, Tunis, Tripoli, and Barca are known as **The Barbary States**, and are so called from their early inhabitants, the Berbers. Arabs, or Moors, now live there.



On the quay at Tangier.

These states extend along the Mediterranean for 2,000 miles.

They are bordered on the south by the Desert of Sahara, and are often visited by its hot winds. Their climate, however, is generally mild and delightful; the coast region enjoys almost perpetual spring.

The products of this region are wheat, dates, olives, grapes, and other fruits.

Between the Atlas Mountains and the great desert is a region known as the **Land of Dates**. Here groves of the date-palm supply the natives with food and protect them from the sun. The inhabitants are Arabs, Moors, and Berbers, and French colonists.

Tripoli and **Morocco** have a large caravan trade across the Sahara, with the Sudan, from whence they receive ivory, gold dust, gums, and ostrich feathers.

The trade of the Barbary States with Europe is important. The chief exports are grain, sheep, cattle, dates, wine, olive oil, wool, and esparto grass, which last is used for making paper.

This region in ancient times supplied the armies and navies of Carthage, the rival of Rome.

2. **Morocco**.—Morocco is the largest of the Barbary States. It is an independent empire, ruled by a Sultan, who is an absolute despot.

The exports are eggs, beans, cattle, maize, gum, goatskins, almonds, and wool. English cotton goods, coffee, sugar, tea, and firearms are the chief imports.

Fez and Morocco, the capitals, and Tangier are the chief commercial cities. There is a large caravan trade with the Sudan.

3. **Algeria** and **Tunis** are the most prosperous of the Barbary States. They belong to France. Agriculture and herding are the chief occupations. There are large forests of cork-oak. There are 3,000,000 date-palms on the Sahara oases and 10,000,000 olive trees on the mountain slopes, while the number of orange, lemon, and other tropical fruit trees is increasing. Transportation is well provided for by good wagon roads and railroads to the seaports, connecting with swift steamships for the ports of

Europe. Iron and zinc are the chief metals mined. The yield of phosphate rock is second only to that of the United States.

From its gardens southern France and other parts of Europe are supplied with early fruits and vegetables.

Esparto grass grows in unlimited supply on the southern plateaus. It is sent to England and France for use in making paper, and with zinc ore and cork forms the most valuable export. Iron, hides, phosphate, flax, tobacco, grains, wine, and sheep are the other leading exports. Algeria and Tunis depend upon France for seven-eighths of their imports; these consist of cloth, coal, coffee, tea, and various manufactures. From other countries they import cattle, lumber, tobacco, and leather.

Algiers, the capital, is the center of trade, and a favorite resort for invalids in winter. **Constantine** and **Oran** are important towns.

4. **Tripoli**.—Tripoli, having no mountains between it and the Sahara, is mostly sterile, the sand of the desert being blown in many places up to the very margin of the sea.

Tripoli, the capital, has a large caravan trade with the Sudan to obtain its products.

Fezzan, a great group of oases, belongs to Tripoli.

Water is found in abundance at depths of ten to twenty feet. Grains and fruits are cultivated. The date-palm is everywhere.

Murzuk, the capital, is the point of junction of caravans passing from the Sudan to Tripoli and Cairo. Formerly it was enriched by the traffic in slaves, bought in the Sudan, sometimes 10,000 in a year, and carried to Mediterranean cities. This traffic still continues, though forbidden by both France and England.

Tripoli and **Barca** are subject to Turkey. **Bengazi** is the capital of Barca.

Review Topics—Barbary States. Coast line. What borders them on the south? Climate. Products. Land of dates. Inhabitants. Caravan trade. Exports. How does Morocco rank among the Barbary States? Form of government. Exports. Capital. What of Fez? Algeria and Tunis. Minerals and vegetable products. What is said of the capital? Other towns. Why is Tripoli sterile? What is said of the capital? Fezzan. Murzuk. To what power do Tripoli and Barca owe allegiance?



Interior of a house in Algiers.



Algiers.

LXXV. SAHARA, SUDAN, AND THE BELGIAN KONGO.

1. **Sahara**.—The Sahara is the largest desert in the world. It reaches from the Atlantic Ocean on the west to the Nile on the east, and is nearly two-thirds the size of the United States.

It is a part of the **great desert belt** that extends from the western

shores of Africa to the eastern limits of the desert of Gobi, in Asia, thus crossing two continents.

2. The Surface consists of vast plateaus of gravel and sand, broken by hills of drifting sand, and bare, rocky ridges, with here and there a fertile section or oasis.

These **oases** are like islands of verdure amid an ocean of sand. They determine the caravan routes.

The **atmosphere** is singularly dry, and the sun beats down with terrific force by day.

The sand burns like fire, the air scorches like flame. Notwithstanding this heat by day, it often freezes at night. In the winter the people in some sections wear furs.



A view of the northern Sahara, showing its broken surface and barren sands.

3. Population.—The scanty population consists chiefly of nomadic tribes of Arabs, or Moors, who wander with their flocks from one oasis to another in search of pasturage.

In the larger oases, **villages** and **cities** are found having a considerable population.

In the **central regions** of the Sahara are the Tuaregs, a tall and handsome people, who wear shawls around their heads and faces to protect them from the blown sands of the desert. They control the caravan routes, and act as guards to the caravans in their passage.

4. Trade.—The people of the desert are largely occupied in transporting, by means of their camels, the exports of the Sudan to the Mediterranean cities, and bringing in return cutlery, cotton goods, and trinkets.

The **salt** of the Sahara mines and brine pits constitutes the wealth and only important export of this region. In some places it is quarried in blocks. At Bilmah, which supplies the greater part of Central Africa with salt, are pits in which, every two or three days, a crust of salt is formed several inches thick. Caravans of a thousand camels go to Bilmah for it.

5. Caravans.—Numerous caravans cross the desert from the Barbary States and Egypt. The main routes are from Tripoli to Kano, in the Sudan, from Morocco to Timbuktu, and from Egypt to El Fasher.

Thousands of **camels**, freighted with merchandise, pass over these ways of the wilderness. They occupy from thirty to ninety days in their journey.

The camel has justly been called "the ship of the desert." He is wonderfully fitted to live in this waterless region, and act as carrier across the pathless sands. He is provided with a pouch that will hold a supply of water sufficient for several days, while his feet are furnished with cushioned soles, which protect them from the burning heat of the sand, and make his footing firm.

6. The Sudan.—The Sudan is a broad, fertile belt, immediately south of the Sahara, stretching nearly across the continent.

Its **prairies** yield abundant pasturage and large crops of Indian corn, while cotton and indigo grow wild.

7. The Population consists of Arabs and negroes. The latter, especially the inhabitants of the old kingdom of Bornu near Lake Tchad, are among the most intelligent and civilized of their race.

They till the soil, manufacture implements of iron, and understand the arts of weaving and dyeing. Many of them are Mohammedans.

8. Trade.—The Sudan has a large caravan trade with Egypt and the Barbary States. The chief articles of export are gold dust, ivory, palm oil, and ostrich feathers. The imports are cloth, weapons, and hardware.

There are some large towns of huts, but none of well-built dwellings like those of civilized countries. **Kano**, **Sokoto**, and **Timbuktu** are starting-points for caravans bound for the shores of the Mediterranean.

9. The entire region of the Sahara and the Sudan is now under the control of England and France.

France controls all of the Sahara west of the basin of the Nile to the Atlantic, and north of the British possessions in the Niger region up to Tripoli and Algeria—in all about 1,500,000 square miles.

A **railway** is projected from the Niger valley to the Mediterranean.

French west Africa comprises parts of the Senegal and upper Niger valleys. Senegal has 520 miles of railway, and 1,400 miles of telegraph lines.

10. The **Belgian Kongo** comprises a large portion of the basin of the Kongo. It extends from the Atlantic to Lake Tanganyika, and is about one-fourth the size of the United States.

The **resources** are chiefly agricultural. Tropical products of every description either grow naturally or may be cultivated. Coffee and cotton grow wild. Ivory is an important product. Palms of various species abound.

11. The Population, mostly negroes, is believed to be thirty millions.

Some of the tribes are intelligent and industrious, and occupy well-built villages. Some have considerable skill in the manufacture of metals and pottery.



Irrigation in the Egyptian Sudan. Water-jars attached to a chain make the pump; the jars go down into the well, are filled, and come up, emptying the water into a canal, which carries it to the field. The wheel to which the chain is attached is turned by cogs in the large horizontal wheel turned by the camel.

Many of the natives are receiving the teachings of Christianity.

12. The Commerce of the Belgian Kongo must in time be very large. Already steamers ply upon its rivers, and numerous trading stations have been established. The chief exports are rubber, palm oil, coffee, ivory, gums, and nuts.

The most valuable tree of this region is the **oil-palm**. It produces bunches of a fruit which looks like a red or yellow plum. A bunch has from 800 to 1,000 "plums." Oil is obtained by boiling the fruit. **Boma** and **Leopoldville** are the principal trading-posts.

Review Topics.—The Sahara. Surface. Oases. The heat by day. The cold by night. Population. Occupation. Salt trade. Between what points are the great caravan routes? The camel. The Sudan. Products. Population. Trade. Exports. Cities. How are the Sahara and the Sudan controlled? Where is the Belgian Kongo? What of its resources? Population. Commerce.

LXXVI. THE WESTERN COAST.

1. The **Lowland** forming the western coast of Africa, part of which is known as Guinea, has, in general, a hot, unhealthy climate, and a luxuriant tropical vegetation.

2. The **Resources**, particularly the agricultural capacities of West Africa, are boundless. Cotton, coffee, and rice are



A village of civilized negroes at Cape Palmas, Liberia.

grown; and the forests yield in profusion palm oil, ebony, India rubber, and other tropical products.

The entire region, with the exception of Liberia, has been appropriated by European governments.

3. The **English possessions** in West Africa are six: Gambia, Sierra Leone, the Gold Coast, Lagos, Southern Nigeria, and Northern Nigeria. These together have an area larger than California, Oregon, and Washington, and a population of about 23,000,000—all natives, except a few hundred Europeans.

Gambia is a district near the mouth of the river of the same name.

Sierra Leone was originally established by the English Government as an asylum for negroes rescued from slave traders. **Freetown** is the capital.

The **Gold Coast** extends along the Gulf of Guinea, and includes the kingdom of Ashanti.

Lagos is an island and neighboring territory on the Bight of Benin, and includes the neighboring kingdom of Yoruba.

Southern Nigeria is a valuable region between Lagos and Kamerun, inhabited by negro tribes of various degrees of civilization.

Northern Nigeria comprises large areas of the Niger Valley. Within



View on the Guinea Coast.

its limits is the old empire of Sokoto, the most extensive and populous region in the entire Sudan.

The **trade** of these colonies is only in its infancy, but is steadily increasing. All the western colonies export palm oil and nuts, ground nuts, kola nuts (used in medicine), copal, rubber, coffee, and ivory, and import cotton cloth, cutlery, hardware, firearms, and liquors.

In all of these colonies industries and transportation are un-

developed. Experimental farming is carried on and roads are being built. Schools are conducted for the natives, and in many of these institutions instruction is given in the trades and in agriculture.

4. The **People** are for the most part natives. Pains have been taken in acquiring possession of the territories to preserve their friendship.

The most widely diffused **religion** of Nigeria is Mohammedanism, and in most of the British West African colonies Mohammedans are numerous. But **Paganism** still largely prevails.

In northern Nigeria an English and a Canadian Missionary Society are at work, and have industrial and other schools at several stations. Thus Christian education is being received by thousands of pupils.

5. **Liberia** is a small independent republic, established in 1847 as a home for the freed negro slaves of America who desired to go there. Its capital is Monrovia, named after President James Monroe. Only a

small proportion of the population, however, consists of their descendants. The chief industry is coffee-raising.



Negro porters carrying ivory to the coast.

6. The **French possessions** in West Africa are Senegal, Upper Senegal and Niger, French Guinea, the Ivory Coast, Dahomey, and French Kongo.

Senegal comprises the basin of the Senegal River, and land to the east.

French Guinea consists of part of the coast west of Sierra Leone.

Upper Senegal and Niger lie east of Senegal and French Guinea.

French Equatorial Africa is a vast area comprising nearly half a million square miles, and forming part of the lower Kongo Basin and extending north to Lake Chad. The **population** is estimated to be eight to fifteen millions.

Schools and **post-offices** have been established; railways and telegraphs are being constructed.

The **Ivory Coast** lies east of Liberia.

Dahomey was once the most powerful native kingdom on the slave coast. The king in olden times was a despot. Besides ordinary troops he had a body-guard of 4,000 "Amazons," or female warriors, who were noted for their courage and discipline. When the king died, a number of his subjects were sacrificed at his tomb. This has all been changed.

The **natives** are pure negroes, and are ignorant and superstitious. They are, however, industrious, and produce the finest of palm oil and the best of maize. Ivory and India rubber are obtained.



Kamerun harbor on the western coast. Notice the pier built out into the water and the ship lying at anchor. Goods and passengers are brought ashore in small boats.

7. The German possessions consist of Togoland, Kamerun, and German Southwest Africa.

One part of this is desert, and the resources of the other part are undeveloped. **Kamerun** and **Togoland** are fertile, and the ordinary west coast products abound. There is active trade in ivory and palm oil.

8. The Portuguese possessions comprise a part of Guinea and the territory called Angola, together with the Azores, Cape Verde, and other islands.

Angola includes a vast fertile region of more than half a million square miles. The **population** consists of about 4,000,000 negroes and a few Europeans.

The chief **products** are coffee, rubber, wax, sugar, vegetable oils, and ivory. There are quantities of copper, iron, petroleum, and salt. There are about 500 miles of **railway**, and 2,000 miles of telegraph.

Loanda is the capital and chief commercial town. The principal other towns are **Ambroz, Benguela, and Mossamedes.**

9. **Islands off the Coast.**—The Cape Verde Islands, Madeira, and the outlying Azores, all belong to Portugal. They are of volcanic origin.

They are famous for **fruits and wines.** Large quantities of oranges

are exported from the Azores. As many as 26,000 oranges have been gathered from a single tree there in one year.

The **Canaries**, also volcanic, belong to Spain. To them we owe the singing-birds that bear their name.

St. Helena is a small rocky island owned and fortified by Great Britain. Here Napoleon was imprisoned and lived until he died.

Review Topics.—State what you know of the climate and resources of West Africa. The English Colonies. French Colonies. German Colonies. Portuguese Colonies. The Islands. The Commerce.

LXXVII. SOUTH AFRICA.

1. All South Africa is under European control.

2. The **British possessions** are Cape of Good Hope, Natal, Orange Free State, the Transvaal, Rhodesia, Nyasaland, Bechuana



Street in Cape Town.

province also has its own local government.

3. **Cape of Good Hope**, often called Cape Colony, includes the famous Kimberley diamond region of South Africa. In twenty years it yielded diamonds valued at \$250,000,000.

The **grapes** of the Cape are excellent. Wine is largely made. **Stock-raising** is the chief industry.

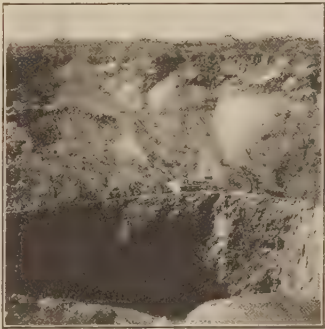
An important occupation is ostrich farming; two hundred and fifty thousand ostriches are kept in herds, like cattle, for the sake of their feathers. The principal diamonds,



3. Looking for diamonds in the washed gravel. The man standing by watches to see that no gems are stolen.



2. Carts hauling the blue rock to be washed and crushed to get the gravel.



Diamond mining in Cape Colony. 1. An open mine where the bumps of lava are dug.

small rocky island owned and fortified by Great Britain.

exports are gold, and wool, ostrich feathers, and copper. The export of gold exceeds that of all other products combined. Diamonds are the second largest export. Ostrich feathers, the hair of the Angora goat (mohair), copper ore, hides, and wine also are important. Most of the exports go to Great Britain, but some of the wool, mohair, diamonds, feathers, and also spices and oil from the eastern coast come to the United States. We sell the South African provinces breadstuffs, machinery, provisions, rum, lumber, tobacco, kerosene, cotton cloth, leather goods, and fish. There is little manufacturing in South Africa. The natives are Kaffirs, Bechuanas, and Hottentots. There are about 580,000 Europeans or whites in the Province.

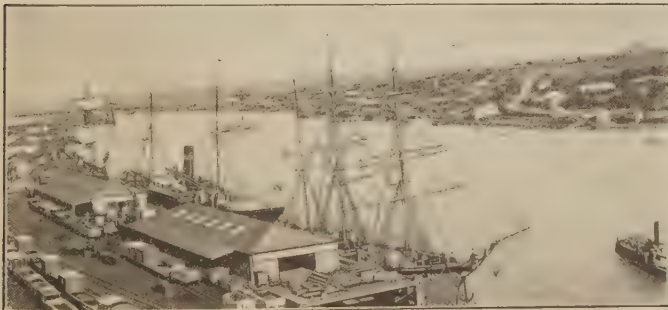
Cape Town, the capital and largest city, is also the legislative capital of The Union. It has a fine harbor, and is the southern



The pier at Port Elizabeth. The surf is so heavy that boats going out to ships are lowered from davits, and merchandise is lifted by cranes, which can be seen in the picture.

terminus of a railway system which extends northward beyond the Zambezi, and connects with all the chief cities of that region.

Kimberley is famous for its diamond mines. **Port Elizabeth** and **East London** have good harbors, and railway lines extending into the interior connect with the colonial railway system.



East London Harbor, at the mouth of Buffalo river.



The Transvaal country, showing a Boer village—Burgersdorp.

4. **Basutoland**, northeast of Cape of Good Hope, has a fine climate, is well watered, and is the best grain-growing region in South Africa.

5. **Natal** includes Zululand. Its chief exports are wool, gold, sugar, and hides. It is rich in coal.

Pietermaritzburg, the capital, and the seaport of **Durban** are connected by railway with **Johannesburg** and **Pretoria**.

6. The immense territories of **Rhodesia**, with the **Protectorate of Bechuanaland** and the **Nyasaland Protectorate**, lie north of Cape of Good Hope, and extend to German East Africa and the Kongo Free State. They are under British control.

Rhodesia is controlled by the British South Africa Company. For administrative purposes this territory is divided into three sections, North-eastern Rhodesia, Northwestern Rhodesia, and Southern Rhodesia.

The **Zambezi** is the dividing line between Southern Rhodesia and the other divisions of Rhodesia. Matabeleland, Mashonaland, and the Protectorate of Bechuanaland form the southern section, while to the northward is the great basin of the Zambezi and the lake region. The entire area possesses immense deposits of gold, silver, and other minerals, and great grazing and agricultural possibilities.

A railroad from Cape Town and one from Beira in Portuguese East Africa extend into the territory, and steamers navigate Lake Nyasa and the Zambezi. Banks, churches, schools, public libraries, and hospitals have been established. **Salisbury** is the capital of Southern Rhodesia. **Bulawayo** is an important town.

7. The **Orange Free State** is rich in gold and diamond mines and grazing lands. **Bloemfontein** is the capital.

8. The **Transvaal** contains famous gold deposits. It may be called the California of Africa. It has good grazing lands.

Pretoria, the capital, is also the executive capital of The Union. **Johannesburg**, the center of the gold mining region, is now the largest city in South Africa.

Cape of Good Hope once belonged to Holland, and many Dutch farmers (in their language, Boers) settled there. When this colony became British, many of the Boers crossed the Orange river and the Vaal river and established colonies which in time became two Boer republics called the Orange Free State and the South African Republic. In 1900 these became British colonies as the result of war with England. Except in Johannesburg, the population is composed almost wholly of Boers.

Review Topics.—Political divisions of South Africa. Products. Inhabitants. Trade.

LXXVIII. THE EASTERN COAST.

1. The **eastern coast** of Africa is held by Portugal, Germany, England, and Italy. It resembles the western in surface, climate, productions, and exports.

2. **Mozambique** or Portuguese East Africa extends from Delagoa Bay to Cape Delgado. It possesses immense resources.

There are **forests** of ebony, India rubber, and sandal-wood. The **Zambezi**, like the Nile, overflows its valley, and the soil yields almost spontaneously. Immense **coal** beds exist, and **gold** so abounds that some have thought this the Ophir of Solomon's day. Wax and ivory are exported.

Lourenço Marques, a small town, is the capital and chief seaport. It is the terminus of the Transvaal railroad. **Beira** is the terminus of a railroad to Southern Rhodesia.

3. **German East Africa** lies north of Cape Delgado, and extends westward to the Kongo Free State. It includes part of the old empire of Zanzibar.

Coffee, cocoa, vanilla, and fiber plants are grown.

4. **British East Africa** also comprises a portion of Zanzibar, together with a large part of the upper Nile valley. It includes also the protectorates of East Africa and Uganda. It is bounded on the north by the Egyptian Sudan.

The **area** thus embraced contains about 1,000,000 square miles; its **population** is over 12,000,000 negroes and Arabs.

The country is being developed. **Roads** and **railroads** are under construction, and the natives generally are quietly settling down to agriculture and other peaceable pursuits.

Zanzibar, on the island so called, is the chief market of the world for ivory and cloves.

5. **Italian Africa** consists of portions of the Red Sea coast, to which the name Eritrea has been given, and of a protectorate on the Somali coast. The pearl fisheries are valuable.



General view of Kimberley, showing buildings around the diamond mines.

6. **Somali** is shared by England, France, and Italy. It is peopled mostly by nomadic tribes. It is noted for the production of gum Arabic and myrrh. It exports these, together with ostrich feathers, ivory, gold dust, and cattle.

The chief town is the seaport of **Berbera**, where a great fair is held every year. At that time the place is crowded with thousands of traders from various parts of Asia and Africa, who come here and exchange the products of the two continents.

7. **Madagascar** is a colony of France. It has adopted Christianity, and is advancing in civilization.

Its climate and products are alike, but its animal life is very different from that of South Africa. It is rich in soil and minerals. One of its products is the **traveler's tree**, the leaf-stalks of which contain as much as a quart of pure water, even in dry weather. Persons and freight are transported on the shoulders of bearers; but wagon roads and railways are being built.

The island of **Mauritius** belongs to Great Britain; **Reunion**, to France. They are extremely fertile, and export sugar, coffee, vanilla, and Sisal hemp.

Review Topics.—What powers control east Africa? Describe their possessions. Products. Inhabitants. Madagascar. Mauritius. Reunion.

LXXIX. AUSTRALASIA.

1. **Australasia** consists of Australia and Tasmania, New Zealand, and the Fiji Islands.

2. The continent of **Australia** has an area nearly equal to that of the United States. It consists for the most part of a vast plain encircled by mountains of moderate elevation. Near

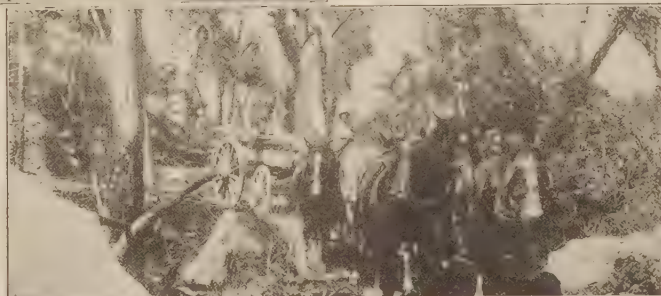


The Buller road on the east coast.

the center of the continent are some low mountain ranges rising above the plain.

The principal mountain range is that of the Australian Alps, which contain peaks as high as 10,000 feet. They are near the east coast and are known as the Dividing Range of the continent.

These are old, worn-down mountains, and may be compared with our own Alleghanies.

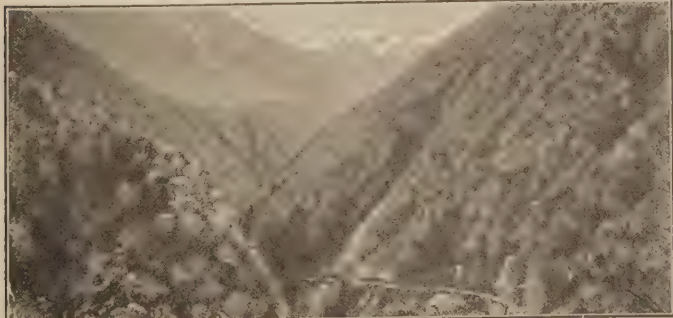


Teaming in the Australian "Bush."

The largest rivers are the Murray and the Darling, each more than 1,000 miles long. Both are navigable for some distance in the rainy season, but at other times the Murray is low and the Darling is almost dry. The rivers of the interior basin flow into shallow, salt lakes, and in summer go dry.

3. **Climate.**—The northern parts of the continent, being in the torrid zone, are hot. The northeastern and eastern coasts have an abundant rainfall, and the climate of southeast Australia is as mild as that of southern Europe. The southwest corner, also, has abundant rain. West of the Dividing Range the climate is dry. The great central plain of the continent has little rain. Parts of it are a desert and uninhabitable.

4. **Vegetation.**—In the northeast, where the rains are abundant, there are dense tropical forests, and valuable hard woods are found. In the southeast are forests of cedar and pine and



Road along the east coast, New South Wales.

the immense eucalyptus gum trees, peculiar to Australia. West of the mountains the forests grow gradually thinner, and on the plains give place to a dense growth of thorny bushes ten or twelve feet high called "the scrub." These plants are peculiarly adapted to the hot, dry climate.

5. **Animals.**—The animal species native to Australia are few in number, and very different from those of other continents. There are among them no oxen, horses, or sheep, no monkeys, and no large beasts of prey. The English have imported domestic animals, and sheep do especially well there.

The largest animal is the kangaroo. It often weighs as much as a sheep. The kangaroo and other Australian animals are shown in the picture on page 21.

Among the birds, the most interesting are the lyre bird (named from the shape of its tail), the black swan, and the emu, or Australian ostrich. This last is sometimes seven feet high. The waters yield the pearl oyster.

6. **Resources.**—Australia is one of the great gold, tin, and copper regions of the world. It surpasses all other countries in the production of wool.

All the principal food plants, and the leading domestic animals of the northern hemisphere, have been introduced, and succeed well.

7. **People.**—Australia was



Wool team in Queensland.

colonized by the English and is an English commonwealth. The aborigines are degraded savages.

They have thick lips and flat noses, and complexions varying from chocolate to black. They are few in number and live in huts made of bark or the branches of trees.

8. **The Occupations** are chiefly mining, stock-raising, and commerce. The exports are gold, wool, and meat.

Two-thirds of this trade is with Great Britain, which takes wool, foods, and metals, and sells in return textiles, iron goods, machinery, ships, chemicals, and various manufactures. Our import of Australian wool is very large, but most of it comes to us by way of Great Britain. Our other imports are hides, hemp, and rabbit-skins, which are used in making hats. We sell Australia more than twice as much as we buy of her. Our exports include a great variety of manufactured goods, among which are flour, oil, steel, machinery, tobacco, lumber, paper, and explosives.

9. **Government.**—The Commonwealth of Australia consists of six states, five in the island of Australia and one in the island of Tasmania. The Territory of Papua (British New Guinea) is a dependency of the Commonwealth. The laws of the Commonwealth are made by a

TIME when it is Noon on the Meridian of Greenwich
P.M. 12
11
10



TIME when it is Noon on the Meridian of Washington
6:38
5:48
5:08
4:28
3:48
3:08
2:28
1:48
1:08
12



This is one of the leading streets in Melbourne.

Federal Parliament, consisting of the Governor-General (who represents the King of England), a Senate, and a House of Representatives. Each state has a lieutenant-governor and a legislative assembly.

10. Cities.—The principal cities are **Melbourne**, the temporary capital of the Commonwealth, and also the capital of Victoria and the chief commercial center of Australia; **Sydney**, the capital of New



Queen Street in Auckland.

South Wales; **Adelaide**, the capital of South Australia; and **Brisbane**, the chief city of Queensland. These are all fine modern cities.

11. Tasmania.—Tasmania is very mountainous, and is rich in minerals. The climate is mild and the soil fertile. The chief occupations are lumbering, agriculture, and sheep raising. Wool is the leading export. **Hobart** is the chief city and capital.

12. New Zealand.—The islands of New Zealand have a mild climate and a fertile soil. Their vast forests yield valuable timber. Gold, silver, coal, iron, and copper abound.

New Zealand flax is an important product. It grows to the height of sixteen to twenty feet, and has leaves ten or twelve feet long. The fiber serves to make sails, nets, garments, baskets and ropes.

13. Occupations.—Sheep raising is the greatest industry, wool and frozen mutton forming over half the exports; many cattle are kept for dairying, the value of the butter and cheese export approaching \$10,000,000 annually. Gold, silver, and coal are the chief minerals. Apples, grapes, and other fruits are extensively grown. New Zealand has 20,000 square miles of forests. One of the famous trees is the kauri pine which yields the kauri (cowrie) gum of commerce. By far the larger part of the gum is found in masses often weighing one hundred pounds buried in the ground where the trees grew and perished ages ago. It is our chief import from New Zealand.

Manufactures are increasing rapidly in New Zealand and already supply most home needs.

They include iron and brass, building materials, furniture, cotton and woolen goods, boots and shoes, clothing, and lumber. Textiles, clothing, steel, sugar, tea, tobacco, spirits, wine, and many small articles of manufacture are imported.

Wellington is the capital. **Dunedin** is the principal seaport.

The aborigines (Maoris) are Malays. Unlike the natives of Australia, they are finely formed, and intelligent, but warlike.

14. Fiji (pop. 129,925 estimated) comprises a group of

islands lying north of New Zealand and belonging to Great Britain. The people have embraced Christianity. Forty thousand children attend school. Sugar and cocoanuts are the chief exports.



Forest of kauri pine in New Zealand. The men are digging the fossil kauri gum.

Review Topics.—Australasia. Australia. Climate. Resources. Vegetation. Animals. People. Occupations. Tasmania. Government. Cities. New Zealand. Fiji.

COUNTRIES.	Area in Sqr. Miles.	Population.
Australia	2,946,650	3,810,000
Tasmania	26,215	173,000
New Zealand	104,663	816,000
Borneo	289,948	1,737,000
Java	50,777	30,098,000
Sumatra	185,039	3,757,000
Hawaiian Islands	6,649	102,000

MAP STUDIES.—What should you think the climate of Australia must be? In what month is the Australian midsummer? Midwinter? What are the products of Australia? Of Tasmania? Of New Zealand?

Malaysia.—Where is Malaysia? Name the products of the Sunda Islands. What do we get from Borneo? What little islands between Sumatra and Borneo supply a large portion of the tin of the world?

Melanesia.—Where is Melanesia? New Guinea is named from Guinea, on the coast of Africa. The natives are of the negro race.

Polynesia.—Where is Polynesia? What is its northwest division called? What are the products of the Ladrões? Fiji? Samoa?

LXXX. OCEANIA.

1. Oceania consists of almost all the islands in the Pacific Ocean except those of Australasia.

Many of them are volcanic; hundreds are of coral formation.

2. The Coral Polyp.—The coral polyp is a small jelly-like animal which builds up from the bottom of shallow seas vast islands upon which sea-shells gather, seeds drift, plants grow, and finally man comes to dwell.

These islands are composed chiefly of lime. The polyps separate lime from the water, and build it up in solid form and die on the rock where they are born. In time millions and millions of these little skeletons are piled one upon another until an island or a reef rises above the water. In time waves grind up a soil upon these new-born rocks and tropical plants soon grow and cover them. The currents of the sea are food carriers for these little masons of the deep, who work only in the warmer seas.

3. Coral Reef.—Many of the coral islands are surrounded by coral reefs at some distance from the shore. Between some of them and the shore ships ride in deep and smooth water. Such a reef skirts the northeast coast of Australia for more than a thousand miles. It varies in breadth from a few yards to nearly fifty miles.

4. Malaysia.—The islands southeast of Asia are called the



In the island of Sumatra.—Native houses and a temple.

Malay or East Indian Archipelago; sometimes Malaysia. Java, Sumatra, Celebes, the Moluccas, or Spice Islands, parts of Borneo and of New Guinea, with several smaller islands, belong to the Netherlands, and are known as the **Dutch East Indies**.

Malaysia is one of the most remarkable **volcanic** regions in the world. Java and Sumatra are studded with volcanoes.

5. Java is the "pearl of the Indies." It contains a population of more than 30,000,000. Important exports are coffee, tobacco, rice, sugar, tea, and cinchona.

The islands of Banka and Billiton are famous for their tin mines.

6. Sumatra, Celebes, and the Moluccas are famed for their spices (nutmeg, mace, and cloves).

In Sumatra grows the largest flower in the world. Its cup is a yard in diameter, and holds two gallons of water. The plant is a parasite called *Rafflesia*. The chief exports are tobacco and black pepper.

There is regular steamship service between the Dutch colonies and the countries of Europe and Asia. A large part of the land is farmed under the direction of the government and the products are sold at auction in Amsterdam to Dutch merchants, who are the "middlemen" for the distribution of colonial products. So it happens that we buy Java coffee, Sumatra tobacco, and Banka tin in Holland. We also buy there the sugar, gums, and spices grown in the Dutch colonies. Our sales to Holland for export to the colonies are mainly kerosene and machinery.

7. Borneo is one of the largest islands in the world.



Hulling coffee in Java.

It exports timber, gutta-percha, cocoanuts, and tobacco. Among its curiosities is the flying frog.

8. The Philippines. (For a description see p. 82.)

9. Melanesia comprises Papua,

or New Guinea, and a chain of islands extending to and including New Caledonia.

It derives its name, Melanesia, or **Black Islands**, from the black tribes called Papuans. They are savages.

New Guinea has been divided by treaty among three nations.



In the Solomon Islands.

Part is owned by the Netherlands, part by Great Britain, and part by Germany. The Dutch have the largest share. The English are actively developing the resources of their part, and are Christianizing and civilizing the natives.

German New Guinea, **Kaiser Wilhelm's Land**, has fertile soil well suited to tobacco. Much of the land is adapted for grazing, and the forests furnish valuable timber.

A curious bird found in New Guinea is the **bird of paradise**.

New Caledonia, a mountainous island east of Australia, belongs to France, and, with the neighboring **Loyalty Islands**, it is used as a convict colony. The island is famous for its metallic ores—nickel, tin, mercury, copper, and platinum being found.

10. Polynesia.—Eastward of Melanesia lies **Polynesia**, or the Many Islands. These dot the Pacific through the space of many million square miles.

The northwestern division of Polynesia is sometimes called **Micronesia**, or the Little Islands.

The Polynesians are Malays.

The bread-fruit, yam, and cocoanut are their chief **food plants**. The sweet-scented sandalwood, which the Chinese burn as incense in pagodas, and **copra**, the dried kernel of the cocoanut, are exported.

Samoa is a volcanic group about 13° south of the equator, not far from the center of the Pacific Ocean, and in the region of the southeast trade-wind. From December to April it has a wet season, with a rainfall, in some years, amounting to 130 inches.

The **natives** are Malays—intelligent but indolent. They have been converted to Christianity. From the skill with which they manage their canoes amid the surf, the islands have been called the "Isles of the Navigators."

Savaii and Upolu belong to Germany; Tutuila and Manua to the United States.

11. Hawaii. (For description, see p. 82.)

Review Topics—Describe Oceania. Two kinds of islands. The coral polyp. Coral reefs. Malaysia. For what remarkable? Java. Sumatra. Celebes. The Moluccas. Borneo. Melanesia. The natives. New Guinea. New Caledonia. Polynesia. Micronesia. Products. Samoa.



The traveler's palm. This tree grows in many tropical countries. When cut into, it yields several quarts of water.

GENERAL REVIEW.

I. Form.—Of what form is the earth? Was its real form always known? Columbus thought he could reach India by sailing west from Europe, was he right? What expedition proved that the earth is round? How do eclipses of the moon prove it even better?

What is the difference between the polar diameter of the earth and the equatorial? Between the polar and equatorial circumferences? What do these differences show about the exact figure of the earth? What is the area of the earth?

How is position indicated on the surface of the earth? Are the degrees of latitude between 0° and 10° and between 60° and 70° equal each to each? Are all degrees of longitude equal each to each? How long in miles is a degree of longitude at the equator? Where is the point which has 0° latitude and 0° longitude?

II. Motions.—What are the motions of the earth? What is the rate at which a point on the equator rotates? How are day and night caused? Explain difference of time. Compare as to time Liverpool, New York, San Francisco.

What determines the length of the year? Explain the changes of the seasons. The inequality of day and night. The equinoxes. The solstices.

III. Zones.—What does zone mean? Describe the division of the earth's surface into zones. How far are the tropics from the equator? Why just so far? Why are the polar circles $23\frac{1}{2}^{\circ}$ from the poles? Describe the sun's apparent annual journey. State its real meaning. Where does Christmas occur at midsummer? Explain why.

IV. Divisions of Surface.—Which is greater, the land or the water-surface of the earth? Is the water surface waste? What are its great uses?

By what line is the earth as shown on maps divided into hemispheres? What continents are in the Eastern hemisphere? In the Western?

By what line is the earth divided into Northern and Southern hemispheres?

Which continents are mostly in the Southern hemisphere? Which one is entirely within that hemisphere?

Which alone of the continents is really a separate body of land? How are North and South America connected? Asia and Africa? What forms the boundary between Europe and Asia?

In what ocean do we find the greatest number of islands? Name some of the most important islands and island groups of the world.

Of which continents are the coast-lines the most indented? Of which is the coast-line the most regular? What is the value of coast indentations?

Define an ocean. Name the oceans. Where is each? Are they really separated? What are the world's great inland seas? Have they any special value? What is the Gulf Stream? The Japan Stream? Describe the course of each. The effect of each upon the continent toward which it flows.

V. Relief.—What and where are the great mountain systems of North America? South America? Europe? Asia? Africa? In what directions do these systems lie? Name some of the highest mountains and their altitude.

What is a volcano? What and where are some of the most noted?

What plateau regions do you find in North America? In South America? How would you describe Africa as regards relief? What plateau region in Southwestern Europe?

Name the great plain regions of North America. Of South America. Europe. Asia.

Name some of the noted valleys of the world.

VI. Drainage.—Explain how the drainage of the world is effected. Name and locate the great rivers of North America. South America. Europe. Asia. Africa. Australia. What beside drainage are the offices of rivers?

Define a lake. Name and locate the great lakes of North America. Africa. The lakes of Europe. Asia. South America. Australia. Name some salt lakes. Why are they salt?

VII. Climate.—Define climate. What is rain? Its source? Explain evaporation and condensation. What zone has the greatest rainfall? What region? What regions the least? Explain winds. Their effect upon rainfall. Give illustrations. Explain the effect of mountains upon rainfall. Give illustrations. What effect has elevation upon climate? Nearness to the sea? Illustrate.

VIII. Vegetation.—Where do you find the densest and most luxuriant vegetation? The most scanty? Name some of the timber trees of North America. The great lumber regions of the continent. For what kinds of wood is Central America noted? What forest products come from South America? Where is the great forest region of Northern Asia? What valuable kinds of timber in Southern Asia? Where are the lands of the bamboo and palm-trees? Name some of the forest trees of Europe. Of Africa. Of Australia. How are Australian trees peculiar? What countries of Europe have noted lumber regions?

Where does sugar-cane flourish? What other sugar-plant is cultivated? Whence come our great supplies of sugar?

Name some of the great sources of oranges, lemons, bananas, apples, grapes. What are the wine-making parts of the United States? Of Europe? Africa?

Whence comes the tea supply of the world? That of coffee? Of cocoa?

What are the great food plants of the world? The most important? What are the chief wheat-growing regions of North America? Where in South America is wheat largely raised? What are the great wheat-growing countries of Europe? What country in Asia is noted for its wheat? What part of Asia is destined to become a large producer of wheat? Where is rye a staple food? What part of the world produces the largest yield of corn? What countries are famed for their rice crop? What parts of the United States? What nations use rice as their chief food? In what regions do potatoes flourish? Where is millet the chief food of the people? Where is breadfruit indigenous? The taro? What fruit is largely the food of the Arab? Where is the banana a great food plant?

What island yields the most famous tobacco in the world? What parts of the United States are noted for their tobacco? What islands in the Pacific? Where are the great opium-raising regions? Who are the great consumers of opium? Where is the coca plant cultivated? What is the effect of its leaf?

What plants supply fibre for making clothing? What are the great cotton-growing regions of the world? What countries are famed for their linen? What plants yield fibre for cordage? Where are they grown?

What continent is famed for its "air-plants"? Whence come cinnamon? Clover? Pepper? Ginger? Camphor? Rubber? Gutta-percha? Attar of roses?

IX. Animal Life of the World.—In what zone are the largest and fiercest wild animals found? Name some of the wild animals of North America. Of your own State. The domestic animals of North America. What parts of the United States are famed for cattle-raising? For sheep? Hogs? Name some of the animals of South America. What are the cattle-raising regions of this continent? Name some of the wild animals of Europe. Of the domestic. The animals of Africa. Of Australia.

What are the great wool-growing regions of the world? Which of our States are famed for wool? Name the silk-producing countries of Asia. Of Europe. The great fur-bearing regions in North America. In Asia. The most noted seal fisheries.

Where are the great fishing grounds of North America? Where is whale fishing carried on? Where are the great fishing grounds of Europe? Where are sponges obtained? Pearls?

X. Population.—About how large is the population of the globe? In what zones and on what continents are most of the people? What is the population of North America? How distributed? Is any part of South America densely settled? How large is the population of Europe? Asia? Africa? Australia?

Describe the appearance of the different races of men. Where do you find each?

XI. Civilization.—What do we mean by the term civilized? Compare the races in this respect. Where do you find savages and barbarous people? Civilized? Enlightened? Which is the most progressive nation of the Mongolians?

Describe the homes of an enlightened people. What tribes live in tents? Of what do the Eskimos build their huts? In what sort of dwelling do the Bushmen live? Of what do the Japanese and Philippine islanders make their houses? How did the natives on the coast of Venezuela originally build their houses? How do the natives of New Guinea? Where do many of the people live in boats?

What leads to the building of towns? What causes towns to grow into cities? What reasons can you give for the growth of New York? Chicago? San Francisco? New Orleans? St. Louis? Atlanta? Galveston? Buffalo? Kansas City? London? Glasgow? Hamburg? Vienna? Singapore?

XII. Religion.—What are the great religions of the world? Where do you find each?

XIII. Government.—Why is government necessary? What nations have the best forms? The poorest?

XIV. Education.—What is education? Describe the education of savages. Of the Chinese. Name countries in which education is compulsory. What countries have the best public instruction? Name some which have little or none. How do well-educated nations rank? Give illustrations of this. Of the reverse.

XV. Migration.—What causes lead to migration? Which is the most migratory race? What parts of the world have been settled by English colonists? Spanish? French? Dutch? What can you tell of the colonization of Africa now going on? Of English colonization in India? Of foreign intercourse with China? What has stimulated modern migration?

XVI. Industries.—Name regions in which the people have no occupation save that of securing food. How do such people rank? In what kinds of labor are the intelligent people of the world engaged? Which of these is the most important? What determine the occupations of a country or region? What are the great agricultural countries of the world? The leading manufacturing countries? The leaders in commerce? In fishing?

Which are the largest coal-producing countries? The greatest producers of silver? Gold? Tin? Copper? Emeralds? Diamonds? Salt?



TRADE AND NAVIGATION.

What is commerce? What was in early ages the great trade of the world? What nations gained control of the India trade after 1497? What caused this?

What means of transportation are employed in Central and South Africa, and why? What in the Sahara? What in carrying on the great tea and fur trade between Russia and China? What beasts of burden are used in the Andean States? How is trade carried on between India and Western Asia?

Goods are paid for among civilized nations with money, chiefly gold and silver, but in parts of Africa products of one region are traded for those of another. In Abyssinia small blocks of salt, and in parts of India and of the African coasts small shells called *couries*, have been used as money.

In what parts of the United States are cattle largely raised? In what parts of South America? Where are the most important fisheries for cod, herring, and mackerel? Salmon? The whale?

What parts of the Pacific coasts of North America and South America are famed for wheat? What part of Russia? Of North Africa? What grains abound in the central parts of North America? Where is rice extensively raised? What are the great tea-growing regions? What important article comes from Brazil? Which of the Dutch East Indies is famed for its coffee? From what part of Arabia do we get the best coffee? What are the great coffee ports? What one of the West Indies is noted for sugar? What part of the United States? What islands in the Pacific? To what part of the United States does Hawaii send sugar? The shores of what great inland sea are famed for fruits? What islands in the Western Hemisphere are also noted for fruits?

What parts of the United States grow large quantities of wool? What parts of South America? What English colonies? What section of the United States produces cotton? What portions of Asia? Africa? What countries are noted for flax? What is made of flax? What are the great silk-growing countries of Asia? Of Europe? From what regions do we get furs? Sealskins? Ostrich feathers?



What continent chiefly supplies us with ivory? What is the great ivory port of the world? From what source do we get supplies of gum? Where do we get our chief supplies of India rubber? Of gutta-percha? Naval stores? Jute? Hemp? Drugs? Peruvian bark? Tobacco? Opium? Hides? What is the great manufacturing region of the New World? Of the Old?

What cargo would a ship be likely to carry from Shanghai to New York? From Bombay to Liverpool? From Odessa to London? From San Francisco to London? From Rio to New York? Montevideo or Buenos Aires to Liverpool? From the Guinea Coast to Liverpool? Havana to New York? New York to Liverpool? New Orleans to Liverpool?

What enables sailing vessels to venture out of sight of land? The time required to cross the ocean has been shortened by voyagers availing themselves of the winds and currents of the sea.

What is the general direction of the winds in the northern half of the Torrid Zone? What in the southern half? What in the North Temperate Zone? In the South Temperate Zone? What striking excep-

tion to this system do you find in the Indian Ocean and China Sea?

What is the best route from New York to Liverpool? How would a vessel make the quickest return passage?

By what route does tea pass from China to Russia? From China to New York? Formerly it was brought by steamers through the Red Sea and Suez Canal, but now most of it is brought across the Pacific to San Francisco or Vancouver and thence by railroad. Compare these routes in length. The old route was around Cape Horn, and thence through the Atlantic. What is the shortest route from Liverpool to Bombay? By what other route may vessels go? At what points do the steamers touch that ply between San Francisco and Sydney? What are the two routes between Sydney and Liverpool? When the canal is cut across the Isthmus of Panama, it will shorten the water route from New York to San Francisco about 10,000 miles, and would make an almost straight course between England and Australia, and between the Pacific shores of South America and the Atlantic ports of the United States.

GEOGRAPHICAL AND STATISTICAL TABLES.

DIMENSIONS OF THE EARTH.

Polar Diameter.....	7,899 miles.
Equatorial Diameter.....	7,925 "
Equatorial Circumference.....	24,899 "
Superficial Area.....	196,861,750 square miles.

HEIGHTS OF PRINCIPAL MOUNTAINS.

North America.		Feet.
MOUNT MCKINLEY,	Alaska.....	20,464
MOUNT LOGAN,	Canada.....	19,500
ORIZABA,	Mexico.....	18,314
MOUNT ST. ELIAS,	Alaska.....	18,024
POWEGATELL,	Mexico.....	17,784
MOUNT WRANGELL,	Alaska.....	17,500
MOUNT BROWN,	Canada.....	16,000
MOUNT WHITNEY,	California.....	14,502
MOUNT RAINIER,	Washington.....	14,368
MOUNT SHASTA,	California.....	14,380
ROCKY MOUNTAINS (average),	".....	10,000
SIERRA NEVADA,	North Carolina.....	6,711
MOUNT MITCHELL,	New Hampshire.....	6,275
MOUNT WASHINGTON,	".....	6,275
APPALACHIAN MOUNTAINS (aver.),	".....	2,500
South America.		
ACONAGUA,	Chile.....	23,052
SALAMA,	Bolivia.....	22,350
GUALATIRI,	Chile.....	22,000
SOBATA,	Bolivia.....	21,286
LEIMANI,	".....	21,149
CHIMBORAZO,	Ecuador.....	20,517
AREQUIPA,	Peru.....	18,500
TOLEMA,	Colombia.....	18,321
ANDES MOUNTAINS (average),	".....	13,000
Europe.		
ELBRUS,	Caucasus Mountains.....	18,572
KASHK,	".....	16,545
MONT BLANC,	Alps.....	15,784
MONT ROSA,	".....	15,223
MATTERHORN,	".....	14,750
FINSTERAAR-HORN,	".....	14,039
JUNGFRAU,	".....	13,715
MALADETTA,	Pyrenees.....	11,200
MOUNT ETNA (volcano),	Sicily.....	10,874
MOUNT OLYMPUS,	Greece.....	9,745
MOUNT VESUVIUS (volcano),	Italy.....	8,948
Africa.		
KILIMANJARO,	Central Africa.....	20,000
KENIA,	".....	19,000
KUWENZI,	".....	17,000
TENEBEPE,	Canary Islands.....	12,182
ATLAS MOUNTAINS (highest),	".....	11,400
Asia.		
EVEREST,	Himalaya Mountains.....	29,000
DAISANG,	Karakoram Mountains.....	28,300
KANCHINGGA,	Himalaya Mountains.....	28,156
DIHAWALAHIRI,	".....	28,000
HINDI KUSH MOUNTAINS,	".....	20,000
DEWAVEND,	Elburz Mountains.....	18,469
ARARAT,	Armenia.....	17,260
FUJIYAMA,	Japan.....	14,000

LENGTH OF PRINCIPAL RIVERS, AND AREA OF RIVER-BASINS.

NAME.	LENGTH.	AREA OF BASIN.
	Eng. Miles.	Square Miles.
North America.		
Mississippi (entire).....	4,300	1,244,000
MacKenzie.....	2,300	448,000
St. Lawrence.....	2,200	385,515
Yukon.....	2,000	200,000
Arkansas.....	2,000	180,000
Rio Grande.....	1,800	240,000
Red.....	1,600	97,000
Columbia.....	1,400	288,000
Colorado.....	1,000	257,000
Ohio.....	820	214,000
Bravo.....	950	200,000
Tennessee.....	800	41,000
South America.		
Amazon.....	3,750	2,510,000
La Plata (Parana).....	2,500	1,242,000
Orinoco.....	1,600	340,000
Madeira.....	2,000	200,000
San Francisco.....	1,200	250,000
Europe.		
Volga.....	2,300	400,000
Danube.....	2,000	269,180
Dnieper.....	1,330	242,000
Rhone.....	1,325	170,000
Rhine.....	960	65,280

NAME.	LENGTH.	AREA OF BASIN.	AREA AND POPULATION OF THE WORLD.	Area in sq. miles.	Population.
	Eng. Miles.	Square Miles.			
Asia.			North America.....	9,431,000	124,297,000
Yenisei.....	8,400	1,000,000	South America.....	6,856,000	38,025,000
Yangtze.....	8,320	547,800	Europe.....	8,842,000	419,884,000
Amur.....	3,000	924,800	Asia.....	17,056,000	909,199,000
Lena.....	2,400	800,000	Africa.....	11,512,000	142,835,000
Brahmaputra.....	2,300	450,000	Australasia and Oceania.....	8,456,000	6,617,000
Indus.....	2,000	312,000	South Polar Lands.....	254,000	—
Euphrates.....	1,780	250,000	Total.....	52,407,000	1,641,467,000
Ganges.....	1,900	482,480			
Irawadi.....	1,200	331,200			
Africa.			PRINCIPAL RELIGIONS OF THE WORLD (1892).		
Nile.....	4,100	1,425,000	Christians.....	477,088,158	
Kongo.....	3,000	1,500,000	Jews.....	7,056,000	
Niger.....	3,000	800,000	Mohammedans.....	176,884,372	
Zambezi.....	1,800	900,000	Buddhists and Other Asiatic Religions.....	460,300,000	
Australia.			Brahmans.....	190,000,000	
Murray.....	1,500	500,000	Pagans.....	117,651,669	

POPULATION OF FOREIGN CITIES AND TOWNS.

(From the most recent foreign authorities.)

NORTH AMERICA.	Peru (1908).	Rixdorf.....	Netherlands (1909).	Japan (1905).
Dom. of Canada (1911).	Lima.....190,000	Stettin.....237,000	Amsterdam.....367,000	Tokyo.....2,186,000
Montreal, Queb.....471,000	Arequipa (est.).....40,000	Duisburg.....229,000	Rotterdam.....415,000	Osaka.....1,227,000
Toronto, Ont.....377,000	Callao (est.).....29,000	Dortmund.....214,000	The Hague.....273,000	Kyoto.....493,000
Vancouver, B.C.....100,000	Bolivia (1900).	Kiel.....211,000	Utrecht.....119,000	Yokohama.....394,000
Ottawa, Ont.....87,000	La Paz.....60,000	France (1906).	Belgium (1910).	Indo-China.
Quebec, Queb.....78,000	Cochabamba.....22,000	Paris.....2,763,000	Brussels.....717,000	Bangkok, Siam.....1,286,000
London, Ont.....46,000	Sucre.....21,000	Marseilles.....518,000	Antwerp.....321,000	(est.).....400,000
Halifax, N.S.....46,000	Chile (1907).	Lyons.....472,000	Liere.....175,000	Singapore (Brit.).....229,000
Calgary, Al.....44,000	Santiago.....408,000	Bordeaux.....252,000	Ghent.....165,000	Hanoi (French) (706) 150,000
St. John, N.B.....42,000	Valparaiso.....188,000	Lille.....206,000	Switzerland (1910).	Afghanistan (estimated).
Edmonton, Al.....30,000	Argentina (1908).	Toulouse.....150,000	Zurich.....191,000	Kabul.....100,000
Mexico (1910).	Buenos Aires.....1,189,000	St. Etienne.....147,000	Basle.....132,000	Kandahar.....50,000
Guadalajara.....119,000	La Plata.....80,000	Nantes.....138,000	Geneva.....123,000	Persia (estimated).
Puebla.....101,000	Paraguay (1905).	Havre.....138,000	Berne.....86,000	Tehran.....280,000
San Luis Potosi.....83,000	Asuncion.....60,000	Roubaix.....121,000	Portugal (1900).	Tabriz.....200,000
Monterrey.....81,000	Uruguay (1908).	Spain (1910).	Lisbon.....356,000	Ispahan.....80,000
Merida.....62,000	Montevideo.....306,000	Madrid.....508,000	Oporto.....108,000	Arabia (estimated).
Leon.....57,000	EUROPE.	Barcelona.....587,000	Denmark (1911).	Mecca.....60,000
Vera Cruz.....45,000	United Kingdom (1911).	Valencia.....283,000	Copenhagen.....462,000	Medina.....48,000
Central America.	London (greater).....7,253,000	Seville.....155,000	Turkey (estimated).	Muscat.....25,000
N. Guatemala ('04) 97,000	Glasgow.....788,000	Malaga.....136,000	Constantinople.....1,125,000	Saloniki.....150,000
San Salvador ('01) 50,000	Liverpool.....747,000	Murcia.....125,000	Asiatic Turkey (est.).	
Leon ('00) 45,000	Manchester.....714,000	Cartagena.....100,000	Greece (1907).	Damascus.....250,000
Tegucigalpa ('01) 35,000	Birmingham.....526,000	Italy (1911).	Athens.....168,000	Smyrna.....201,000
West Indies.	Sheffield.....465,000	Naples.....723,000	Piræus.....72,000	Bagdad.....145,000
Havana ('07) 297,000	Leeds.....446,000	Genoa.....272,000	Patras.....38,000	Aleppo.....127,000
Port-au-Prince ('03) 70,000	Belfast.....385,000	Florence.....238,000	Roumania (1899).	Beirut.....119,000
Kingston (est.) 55,000	Bristol.....357,000	Catania.....212,000	Bucharest.....282,000	Brusa.....76,000
San Juan ('10) 49,000	Edinburgh.....320,000	Bologna.....175,000	Jassy.....78,000	Jerusalem.....70,000
Santiago ('07) 45,000	Dublin.....309,000	Venice.....167,000	Galatz.....63,000	Asiatic Russia (1897).
Matanzas ('07) 36,000	West Ham.....280,000	Messina.....126,000	Servia (1910).	Baku.....179,000
Hridge town (est.) 35,000	Bradford.....280,000	Laghorn.....105,000	Belgrade.....91,000	Tiflis.....161,000
Ponce ('10) 35,000	Kingston-on-Hull.....275,000	Bari.....104,000	ASIA.	Tashkend.....156,000
South AMERICA.	Newcastle.....267,000	Russia (1897).	China (estimated).	Kokan.....87,000
Brazil.	Nottingham.....260,000	St. Petersburg.....1,313,000	Pekin.....1,000,000	Yekaterinodar.....66,000
Rio de Janeiro ('06) 811,000	Stoke-on-Trent.....235,000	Moscow.....1,002,000	Canton.....900,000	Tomsk.....64,000
São Paulo ('06) 318,000	Liverpool.....747,000	Vladivostok.....58,000	Shanghai.....651,000	Manila ('04) 220,000
Bahia ('06) 230,000	Cardiff.....182,000	Odessa.....450,000	Fuehau.....624,000	Surabaya ('05) 170,000
Pernambuco ('06) 150,000	Bolton.....151,000	Lyons.....472,000	Suchau.....500,000	Batavia ('05) 189,000
Guiana.	Croydon.....170,000	London.....2,763,000	Chung-King.....350,000	
Georgetown ('91) 53,000	Dundee.....165,000	Sweden (1910).	Hong Kong ('01).	AFRICA.
Paramaribo ('05) 34,000	Aberdeen.....168,000	Stockholm.....342,000	Ningpo.....260,000	Cairo ('07) 655,000
Cayenne ('06) 13,000	Germany (1910).	Gothenburg.....168,000	Nankin.....250,000	Alexandria ('07) 382,000
Venezuela (1894).	Berlin.....2,071,000	Norway (1910).	British India (1901).	Tunis ('06) 228,000
Caracas.....72,000	Hamburg.....982,000	Christiania.....244,000	Calcutta.....1,027,000	Fez (est.) 140,000
Valencia.....39,000	Munich.....605,000	Bergen.....77,000	Bombay.....776,000	Algiers ('06) 138,000
Maracaibo.....34,000	Leipzig.....588,000	Frankfort-on-Main.....415,000	Madras.....509,000	Oran ('08) 100,000
Colombia (1902).	Dresden.....547,000	Dusseldorf.....378,000	Haifa.....418,000	Cape Town ('04) 78,000
Bogota.....120,000	Cologne.....516,000	Nuremberg.....332,000	Lucknow.....264,000	AUSTRALIA (1901).
Medellin.....53,000	Breslau.....512,000	Charlottenburg.....305,000	Banango.....235,000	Melbourne.....196,000
Barranquilla.....40,000	Frankfort-on-Main.....415,000	Danzig.....302,000	Benares.....209,000	Sydney.....422,000
Ecuador (1900).	Dusseldorf.....378,000	Essen.....295,000	Deli.....209,000	Aelaide.....163,000
Quito.....80,000	Nuremberg.....332,000	Chemnitz.....287,000	Lahore.....203,000	Brisbane.....120,000
Guayaquil.....51,000	Charlottenburg.....305,000	Stuttgart.....286,000	Ceylon (1901).	Auckland ('06) 88,000
	Frankfort-on-Main.....415,000	Magdeburg.....280,000	Colombo.....158,000	Hobart.....25,000
	Dusseldorf.....378,000	Bremen.....247,000		
	Nuremberg.....332,000	Königsberg.....246,000		

Many references have been made to these tables in the preceding lessons, and you have become accustomed to using them; but a great deal more may be learned from a more careful study of them. A noted German author has said that "figures show

how the world is governed." Whether this is true or not, it is certainly true that figures show how the commerce of the world is carried on. The questions which follow are suggestive of some things that these figures teach.

TABLE III.*

LEADING EXPORTS OF THE UNITED STATES, 1911.	VALUE.	LEADING COUNTRIES TO WHICH SENT.	LEADING PORTS AND DISTRICTS FROM WHICH SENT.
Raw Cotton	\$517,953,575	United Kingdom, Germany, France, Italy, Japan, Spain	Galveston, New Orleans, Savannah, New York.
Manufactured Cotton (cloth, yarn, clothing).....	45,686,591	China, Central American States, West Indies, Aden...	New York, Boston, San Francisco.
Iron and Steel Goods (machinery, engines, hardware)...	249,656,411	United Kingdom, Can., Mex., Germ'y, Argentina, Brazil	New York, Buffalo, Cuyahoga, Detroit.
Meat and Dairy Products.....	160,316,842	United Kingdom, Germ'y, Netherlands, Cuba, Canada	New York, Boston, Baltimore, Philadelphia.
Breadstuffs.....	135,860,349	United Kingdom, Netherlands, Germany, China, Cuba	New York, Baltimore, Galveston, New Orleans.
Petroleum (kerosene, crude and other mineral oils)...	105,122,848	United Kingdom, Germany, Netherlands, China, Cuba	New York, Phila., Baltimore, San Francisco.
Cottonseed Oil (and other vegetable oils).....	24,908,708	Netherlands, United Kingdom, Italy, Mexico, France...	New Orleans, Galveston.
Copper (bars, plates, and manufactured).....	103,327,846	Neth's, Germ'y, France, United King., Austria-Hungary	New York, Baltimore, Philadelphia.
Timber, Lumber, Furniture, etc.....	95,980,868	Can., United King., Argentina, Neth's, British Oceania	New York, Pensacola, New Orleans.
Leather and Manufactures of.....	57,038,037	United Kingdom, Cuba, Germ'y, Canada, Netherlands	New York, Boston.
Coal and Coke.....	55,809,264	Canada, Cuba, Panama, Mexico, West Indies.....	Buffalo, Cuyahoga, Niagara, Oswego.
Tobacco (leaf and manufactured).....	46,829,275	United Kingdom, Germany, Italy, France, Netherlands	New York, Baltimore, New Orleans.
Agricultural Implements.....	36,241,683	Russia, Argentina, Can., France, Germ'y, United King.	New York, N. and S. Dakota, New Orleans
Cars and Vehicles.....	35,456,769	Can., United Kingdom, Argentina, Br. Oceania, Cuba	New York, El Paso, Detroit.
Fruits and Nuts.....	29,153,123	United Kingdom, Canada, Germany, Netherlands....	New York, San Francisco.
Naval Stores.....	27,370,569	Un. King., Germ'y, Neth's, Belgium, Brazil, Argentina	Fernandina, Savannah.
Chemicals, Drugs, and Dyes.....	24,236,856	United Kingdom, Mexico, Canada, Germany, Italy...	New York, Boston, San Francisco.
Live Animals.....	20,389,993	United Kingdom, Canada, Mexico.....	New York, Boston, Baltimore, Philadelphia.
All Others.....	321,287,239		
Total Exports.....	\$2,092,526,846		
Total Imports.....	1,533,067,160		
Balance of Trade in favor of United States....	\$559,459,686		

Name our largest export. Why is more cotton shipped through the ports of Galveston and New Orleans than through New York? Why is Great Britain (a small country) so large a purchaser of our goods? What countries buy our manufactured cotton? What do you know of the industries of these countries? What can you say of the industries of those

countries that buy our agricultural implements? What is exported from Fernandina? From Buffalo? From Savannah? Why? Why are more goods exported from New York than from other ports? Select countries that are the largest buyers of foods. Why is this? What countries buy our raw materials? Why? What countries buy our manufactures? Why?

TABLE IV.

LEADING IMPORTS OF THE UNITED STATES, 1911.	VALUE.	LEADING COUNTRIES FROM WHICH OBTAINED.	LEADING PORTS AND DISTRICTS AT WHICH ENTERED
Sugar and Molasses	\$100,439,639	Cuba, Philippine Islands, Dutch East Indies.....	New York, Philadelphia, New Orleans, Boston.
Coffee.....	97,178,893	Brazil, Colombia, Venezuela, Central American States	New York, New Orleans, San Francisco, Baltimore.
Chemicals, Drugs, and Dyes.....	96,933,182	Germany, United Kingdom, Turkey, India.....	New York, Philadelphia, San Francisco, Boston.
India Rubber and Gutta Percha (raw).....	87,941,338	Brazil, United Kingdom, Germany, Belgium.....	New York, Boston.
Hides and Skins.....	81,456,348	Argentina, East Indies, Russia, Germany.....	New York, Boston, Philadelphia.
Raw Silk.....	69,304,548	Japan, China, Italy, France.....	Oswegatchie, San Francisco, New York, Puget Sound.
Mfd. Silk (cloth, velvet, ribbons, laces, etc.)...	29,255,646	France, Japan, Switzerland, Germany.....	New York, Philadelphia.
Raw Cotton.....	21,530,097	Egypt, Asia, United Kingdom.....	Boston, New York.
Mfd. Cotton (cloths, clothing, laces, etc.).....	65,804,949	Switzerland, France, United Kingdom, Germany....	New York, Chicago, Boston.
Raw Fiber (hemp, flax, jute, grasses).....	30,567,414	Mexico, Philippine Islands, East Indies.....	New York, Boston, New Orleans, Mobile.
Manufactured Fiber (bagging, linens, laces, etc.)...	55,837,538	East Indies, United Kingdom, Germany.....	New York, Boston, New Orleans, Philadelphia.
Wood (and manufactures of).....	51,844,663	Canada, Sweden, Norway, Germany.....	New York, Champlain, Oswegatchie, Huron.
Fruits and Nuts.....	44,164,650	Central American States, British West Indies.....	New York, New Orleans, Boston, Mobile.
Tin (unmanufactured).....	43,390,639	United Kingdom, Straits Settlements, Germany....	New York, San Francisco, Philadelphia, Boston.
Precious Stones.....	42,163,164	Belgium, Netherlands, United Kingdom, France....	New York, San Francisco, Philadelphia, Boston.
Leaf Tobacco.....	32,117,706	Cuba, Netherlands, Turkey.....	New York.
Cigars and Cigarettes.....	5,308,404	Cuba, Egypt, Mexico.....	New York, Tampa, Philadelphia, Chicago.
Copper (manufactures of).....	31,490,145	Mexico, Peru, Spain, Canada.....	New York, San Francisco, Boston.
Oils.....	30,192,400	France, Italy, China.....	New York, San Francisco.
Iron and Steel (manufactures of).....	28,995,600	United Kingdom, Canada, Netherlands.....	New York, Boston, Philadelphia.
Raw Wool and Hair of Goat, Alpaca, etc.).....	25,479,422	United Kingdom, China, Argentina.....	New York, Boston, San Francisco.
Mfd. Wool (carpets, cloths, clothing, etc.).....	16,217,833	United Kingdom, Turkey in Europe, Asia, France...	New York, Boston, Philadelphia.
Furs (skins and clothing).....	25,465,521	Germany, France, United Kingdom, Belgium....	New York.
Tea.....	18,317,171	Japan, United Kingdom, China.....	New York, Chicago, San Francisco, Boston.
Paper (and manufactures of).....	18,112,859	United Kingdom, Germany, Canada.....	New York.
Spirits, Wines, and Malt Liquors.....	18,035,257	France, Germany, United Kingdom, Italy.....	New York, Boston, San Francisco.
Mfd. Leather and Tanned Skins.....	14,699,455	France, Germany, United Kingdom.....	New York, Boston.
All Others.....	350,822,679		
Total Imports.....	\$1,533,067,160		

Where is raw sugar refined (Index)? What kind of sugar do we get from each country named? About how much is the value per person of our sugar import? Of the coffee import? What kind of raw fiber do we get from each country named? Compare the industries of these countries with those of the countries where we buy manufactured fiber. What use have we for the cotton of Egypt and Peru? What port receives wool and cotton, and why? Why is India a large exporter of hides? (Brahmanism (LXIX) forbids the use of any part of a dead ani-

mal.) What is the location of the countries supplying rubber? Where are rubber goods made (see Index)? Compare our export of tobacco with our import. Make similar comparisons in regard to leather, steel, fruits and copper. Explain why these articles are both imports and exports. Notice that some articles are imported as raw materials and exported as manufactured goods; others, like fruits and tobacco, differ in kind; still other goods are imported because of convenience. Canadian coal, for example, is nearer to some parts of our country than the home supply.

* For Tables I and II, see pages 8 and 14, Lessons in Commercial Geography.

TABLE V.

NAME OF PORT AND CUSTOMS DISTRICT.	VALUE OF EXPORTS.	VALUE OF IMPORTS.	TOTAL TRADE.	AMERICAN TONNAGE.	FOREIGN TONNAGE.	TOTAL TONNAGE.
New York.....	\$801,049,578	\$895,320,354	\$1,696,369,932	2,907,764	24,214,968	27,122,732
New Orleans.....	153,615,150	68,012,652	221,627,802	283,785	4,066,036	4,349,821
Boston.....	73,919,856	115,662,049	189,581,905	358,889	4,440,686	4,799,575
Galveston.....	197,174,811	3,710,854	200,885,665	238,157	2,022,738	2,260,895
Philadelphia.....	71,121,781	80,539,755	151,661,536	378,784	4,557,012	4,935,796
Baltimore.....	94,546,755	28,382,580	122,929,335	11,774	2,575,466	2,587,240
San Francisco.....	44,249,472	56,081,967	100,331,439	810,496	1,353,156	2,163,652
Puget Sound.....	48,629,936	35,863,636	84,493,572	1,658,660	3,091,202	4,749,862
87 Other Districts.....	608,219,507	249,493,313	857,712,820	12,797,924	19,344,639	32,142,563
Totals, 1911.....	\$2,092,526,846	\$1,533,067,160	\$3,625,594,006	19,446,233	65,665,903	85,112,136

Ports of Entry.—The foreign trade of a country is carried on through certain seaports designated by the government as "Ports of Entry." Such a port with the neighboring territory is known as a "Customs District." It contains a custom house with a corps of officers who inspect all goods entering the port from foreign countries and collect the duty as fixed by the tariff laws. Each lot of imported goods is accompanied by an invoice, or list, which has been inspected and signed by our consul at the foreign port from which the goods were shipped, and by a bill of lading signed by the transportation company which receives them from the exporter. It is the duty of the customs inspector to see that the goods delivered to the importer are the same in amount and value as those described in the invoice. When such is the case the merchant may call at the custom house, pay the duty, and receive his goods.

For the convenience of importers who do not wish their goods at once, or who live in inland towns, goods are stored in "bonded" warehouses or shipped "in bond" to the port of entry nearest the importer, who in either case must pay all expense of carriage besides the duty. The importance of a port of entry is measured by the value of the goods exported and imported, or by the number and tonnage (carrying capacity) of the ships entering and leaving during the year. Table V shows the rank of our chief seaports during the year ending Dec. 31, 1911.

QUESTIONS ON TABLE V.

What part of our exports goes through the port of New York? What part of our imports? Why does New York have so large a share of the foreign trade? Compare the exports of New Orleans and Galveston with their imports. Why are the former so much larger? Name products that could be most cheaply exported by way of Boston. Galveston. Philadelphia. San Francisco. Which port has the largest percentage of foreign vessels? Of American vessels? Find out what part of our trade is carried in foreign ships. Which three ports receive the most foreign goods? Can you give a reason for this? Are they large cities? Are they good distributing points? Have they great capital to carry on extensive business? How can the business of a seaport be increased? The business of New Orleans has been increased by improved navigation on the Mississippi and the lowering of railroad freight rates from the grain and meat producing regions. How does this help the producer?

QUESTIONS ON TABLE VI.

What countries have a sparse population? What are the leading industries in these countries? What kind of goods do they buy of us? Sell to us? Compare the imports of thickly settled countries with those of thinly settled countries. Why are the former greater? What kinds of goods does each import? Find countries whose imports exceed their exports; find other countries whose exports exceed their imports; compare these countries as to population, industries, and wealth. How can you explain the small import of Bolivia and Switzerland from the United States? What countries have a balance of trade against them? (Refer to Fig. 21 and see how these countries rank in shipping.) Which countries have large balances in their favor?

TABLE VI.

DENSITY OF POPULATION AND TRADE OF THE PRINCIPAL COUNTRIES.

COUNTRIES.	POPULATION PER SQUARE MILE.	FOREIGN COMMERCE.		COMMERCE WITH THE UNITED STATES.	
		IMPORTS.	EXPORTS.	IMPORTS FROM UNITED STATES.	EXPORTS TO UNITED STATES.
		Dollars.	Dollars.	Dollars.	Dollars.
Argentina.....	4.57	292,160,000	38,443,000	41,561,000	25,154,000
Australia, Com. of.....	1.34	249,028,000	317,874,000	24,348,000	12,648,000
Austria-Hungary.....	196.38	557,505,000	470,738,000	46,905,000	17,100,000
Belgium.....	661.18	714,933,000	542,277,000	53,498,000	20,668,000
Bolivia.....	3.99	14,775,000	22,703,000	4,349,000	86,000
Brazil.....	4.34	179,690,000	308,332,000	22,266,000	123,817,000
Bulgaria.....	116.00	30,963,000	21,507,000	114,000	276,000
Canada.....	1.43	375,833,000	258,222,000	223,502,000	86,265,000
Chile.....	11.11	94,350,000	110,315,000	9,601,000	19,650,000
China.....	272.11	270,931,000	213,565,000	20,542,000	20,441,000
Colombia.....	8.41	10,561,000	15,513,000	3,679,000	7,010,000
Cuba.....	46.53	98,240,000	144,037,000	49,956,000	122,199,000
Denmark.....	185.68	152,993,000	119,740,000	14,689,000	2,310,000
Ecuador.....	10.72	9,352,000	12,439,000	2,398,000	3,416,000
Egypt.....	45.53	109,885,000	128,895,000	985,000	9,404,000
France.....	189.42	1,205,500,000	1,103,584,000	140,455,000	91,438,000
German Empire.....	308.73	2,027,790,000	1,568,954,000	300,375,000	143,938,000
Greece.....	105.39	29,844,000	21,368,000	1,387,000	1,168,000
India, British.....	158.55	417,799,000	486,079,000	10,681,000	42,858,000
Italy.....	313.38	600,560,000	360,310,000	75,307,000	52,566,000
Japan.....	281.95	196,311,000	205,730,000	26,914,000	65,510,000
Mexico.....	19.63	97,039,000	129,508,000	56,213,000	98,100,000
Netherlands.....	465.93	1,261,235,000	986,810,000	116,826,000	40,010,000
Dutch E. Indies.....	52.65	112,786,000	189,227,000	1,648,000	22,295,000
New Zealand.....	8.95	76,281,000	94,716,000	5,675,000	3,327,000
Norway.....	19.28	103,613,000	70,839,000	7,586,000	5,088,000
Persia.....	14.17	38,969,000	32,724,000	30,000	225,000
Peru.....	10.45	29,199,000	29,686,000	5,815,000	5,857,000
Portugal.....	145.36	69,943,000	33,448,000	3,402,000	6,283,000
Roumania.....	117.46	79,913,000	73,230,000	503,000	12,000
Russia.....	14.89	540,183,000	560,993,000	40,796,000	1,453,000
Servia.....	133.73	14,192,000	17,945,000	168,000	580,000
Spain.....	99.40	167,471,000	162,038,000	21,292,000	10,814,000
Sweden.....	31.93	105,304,000	126,759,000	12,855,000	4,283,000
Switzerland.....	234.09	309,213,000	211,849,000	12,266,000	28,231,000
Turkey.....	17.44	139,059,000	81,576,000	2,069,000	10,078,000
United Kingdom.....	373.79	3,040,127,000	1,840,415,000	575,969,000	144,813,000
United States.....	25.01	1,533,067,000	2,092,527,000		
Uruguay.....	15.06	38,643,000	47,621,000	4,016,000	5,709,000
Venezuela.....	6.72	9,492,000	16,047,000	2,754,000	7,186,000
Other Countries.....		992,335,000	985,849,000	74,131,000	74,479,000
All Countries.....		16,456,967,000	14,599,432,000	2,017,526,000	1,337,555,000

Are such countries richest? Which five countries sell us the most goods? What are these goods (Table IV)? Which five buy the most of us? Of what do their purchases consist? Compare our trade with Russia with that which we have with Germany. How is the difference in amount explained?

Compare Turkey's imports with her exports. Why does this explain her large debt? Why is not Switzerland a bankrupt nation since there is a large balance of trade against her? Compare our trade with the countries most distant from us. With that of those nearest to us. How does distance affect trade? Why has Great Britain a larger trade with these distant countries than the United States? What part of the imports of Germany, Great Britain, France, Netherlands, and Belgium come from the United States? What part of their exports do we buy? What do we buy of Mexico? Why is our trade with Russia so small? Why is our import from Australia and Argentina so large? Compare these imports with those from Belgium.

STATISTICAL TABLE VII.

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STATISTICS OF AGRICULTURE IN THE UNITED STATES, 1910.

STATES AND TERRITORIES.	Corn, Bushels.	Wheat, Bushels.	Oats, Bushels.	Rye, Bushels.	Barley, Bushels.	Rice, Bushels.	Cotton, Bales.	Potatoes, Bushels.	Hay, Tons.	Tobacco, Pounds.	Flaxseed, Bushels.	Cane Sugar, Tons.	Beet Sugar, Tons.	Hogs.	Sheep.	Wool, Pounds.
Alabama.....	63,432,000	1,560,000	5,494,000	24,000	—	25,000	1,223,000	1,440,000	172,000	800,000	—	—	—	1,176,000	178,000	560,000
Arizona.....	390,000	870,000	160,000	—	1,221,000	—	—	244,000	—	—	—	—	—	22,000	1,920,000	4,500,000
Arkansas.....	69,216,000	2,710,000	4,730,000	24,000	—	2,400,000	848,000	2,604,000	254,000	555,000	—	—	—	978,000	233,000	800,000
California.....	1,838,000	17,100,000	8,325,000	986,000	43,400,000	3,000	6,000	5,060,000	1,281,000	—	—	140,000	540,000	2,372,000	13,900,000	13,900,000
Colorado.....	2,840,000	5,721,000	7,898,000	70,000	864,000	—	—	6,500,000	1,400,000	—	—	108,000	248,000	1,739,000	9,100,000	9,100,000
Connecticut.....	8,932,000	—	408,000	200,000	—	—	—	4,375,000	662,000	23,182,000	—	—	—	47,000	84,000	184,000
Delaware.....	6,124,000	2,074,000	135,000	16,000	—	—	—	1,030,000	110,000	—	—	—	—	46,000	12,000	89,000
Florida.....	8,814,000	—	502,000	—	—	19,000	60,000	540,000	25,000	2,380,000	—	—	—	456,000	98,000	374,000
Georgia.....	65,714,000	2,730,000	6,243,000	146,000	—	88,000	1,821,000	820,000	122,000	1,088,000	—	—	—	1,647,000	245,000	675,000
Idaho.....	192,000	12,063,000	7,084,000	80,000	2,145,000	—	—	8,408,000	1,473,000	—	—	14,000	—	148,000	4,248,000	18,980,000
Illinois.....	414,812,000	31,500,000	171,000,000	1,218,000	906,000	—	—	12,675,000	3,717,000	1,264,000	—	—	—	3,772,000	817,000	4,900,000
Indiana.....	201,216,000	40,081,000	65,490,000	869,000	245,000	—	—	7,728,000	2,730,000	23,700,000	—	—	—	2,578,000	1,227,000	8,550,000
Iowa.....	343,370,000	11,181,000	181,440,000	592,000	15,045,000	—	—	12,240,000	3,780,000	—	195,000	—	—	6,485,000	754,000	5,400,000
Kansas.....	169,100,000	62,065,000	46,620,000	682,000	5,400,000	—	—	5,016,000	2,061,000	—	410,000	—	—	1,942,000	278,000	1,313,000
Kentucky.....	105,270,000	9,600,000	4,250,000	169,000	24,000	—	—	7,772,000	645,000	851,024,000	—	—	—	989,000	1,060,000	8,800,000
Louisiana.....	58,885,000	—	774,000	—	—	12,769,000	256,000	1,100,000	44,000	275,000	—	825,000	—	744,000	178,000	574,000
Maine.....	782,000	267,000	5,554,000	—	248,000	—	—	27,940,000	1,750,000	—	—	—	—	62,000	254,000	1,260,000
Maryland.....	28,785,000	13,816,000	810,000	388,000	31,000	—	—	3,420,000	398,000	19,665,000	—	—	—	274,000	168,000	676,000
Massachusetts.....	2,275,000	—	248,000	—	—	—	—	4,375,000	755,000	7,612,000	—	—	—	68,000	46,000	217,000
Michigan.....	6,744,000	15,642,000	51,170,000	5,355,000	1,742,000	—	—	35,175,000	3,370,000	—	—	139,000	—	1,159,000	2,315,000	11,475,000
Minnesota.....	56,375,000	94,080,000	78,523,000	1,955,000	26,955,000	—	—	10,065,000	908,000	—	3,540,000	—	—	1,003,000	482,000	2,550,000
Mississippi.....	66,256,000	70,000	3,364,000	—	—	84,000	1,307,000	765,000	112,000	55,000	—	—	—	1,290,000	171,000	600,000
Missouri.....	273,000,000	25,130,000	26,208,000	210,000	54,000	—	62,000	7,912,000	3,510,000	7,575,000	—	—	—	2,714,000	957,000	6,020,000
Montana.....	184,000	10,560,000	13,800,000	80,000	1,455,000	—	—	3,000,000	840,000	—	420,000	—	—	75,000	5,747,000	39,600,000
Nebraska.....	206,400,000	39,515,000	74,200,000	1,200,000	2,498,000	—	—	6,000,000	1,500,000	—	50,000	—	—	8,201,000	398,000	1,625,000
Nevada.....	—	1,160,000	—	—	860,000	—	—	8,000,000	755,000	—	—	—	—	15,000	1,885,000	5,950,000
New Hampshire.....	1,420,000	—	539,000	—	52,000	—	—	3,150,000	768,000	172,000	—	—	—	51,000	71,000	420,000
New Jersey.....	10,440,000	2,053,000	2,226,000	1,580,000	—	—	—	9,975,000	656,000	—	—	—	—	152,000	44,000	275,000
New Mexico.....	1,610,000	860,000	—	—	25,000	—	—	94,000	407,000	—	—	—	—	82,000	4,729,000	19,200,000
New York.....	26,044,000	10,523,000	46,161,000	3,111,000	2,207,000	—	—	44,676,000	6,851,000	7,875,000	—	—	—	656,000	1,177,000	4,950,000
North Carolina.....	57,139,000	4,483,000	3,458,000	150,000	—	27,000	737,000	2,314,000	292,000	129,000,000	—	—	—	3,358,000	215,000	755,000
North Dakota.....	2,996,000	36,105,000	11,295,000	128,000	5,428,000	—	—	1,493,000	108,000	—	—	5,778,000	—	206,000	621,000	1,755,000
Ohio.....	144,540,000	31,493,000	65,638,000	924,000	884,000	—	—	14,924,000	3,948,000	75,087,000	—	—	—	2,047,000	3,268,000	16,900,000
Oklahoma.....	92,352,000	23,363,000	23,068,000	55,000	900,000	—	859,000	1,560,000	945,000	—	45,000	—	—	1,802,000	108,000	520,000
Oregon.....	459,000	16,414,000	10,419,000	226,000	2,016,000	—	—	4,620,000	922,000	—	—	—	—	267,000	2,581,000	14,438,000
Pennsylvania.....	65,026,000	27,097,000	35,130,000	6,460,000	238,000	—	—	28,160,000	4,483,000	49,500,000	—	—	—	981,000	1,112,000	6,800,000
Rhode Island.....	440,000	—	70,000	—	—	—	—	816,000	74,000	—	—	—	—	68,000	56,000	188,000
South Carolina.....	44,738,000	4,988,000	4,899,000	40,000	—	857,000	1,192,000	816,000	74,000	—	—	—	—	805,000	829,000	4,068,000
South Dakota.....	54,056,000	47,720,000	35,075,000	595,000	18,655,000	—	—	2,420,000	408,000	18,900,000	8,800,000	—	—	1,264,000	347,000	1,287,000
Tennessee.....	66,343,000	10,647,000	4,600,000	88,000	23,000	—	850,000	2,400,000	637,000	64,600,000	—	—	—	8,205,000	1,909,000	8,944,000
Texas.....	181,230,000	18,750,000	24,825,000	46,000	150,000	8,738,000	3,172,000	8,060,000	711,000	420,000	—	10,000	—	61,000	8,177,000	14,175,000
Utah.....	394,000	5,708,000	2,494,000	56,000	468,000	—	—	2,130,000	1,140,000	—	—	—	—	95,000	229,000	1,170,000
Vermont.....	2,881,000	29,000	3,928,000	85,000	465,000	—	—	3,770,000	1,256,000	320,000	—	—	—	174,000	529,000	643,000
Virginia.....	54,621,000	10,176,000	4,268,000	270,000	88,000	—	14,000	6,656,000	565,000	124,800,000	—	—	—	388,000	709,000	8,450,000
Washington.....	448,000	25,008,000	8,877,000	123,000	5,894,000	—	—	5,109,000	815,000	—	—	—	—	1,651,000	1,084,000	6,075,000
West Virginia.....	23,291,000	5,125,000	2,520,000	155,000	—	—	—	3,772,000	810,000	12,800,000	—	—	—	21,000	7,816,000	86,038,000
Wisconsin.....	51,188,000	8,659,000	69,136,000	4,880,000	22,429,000	—	—	24,700,000	2,260,000	31,710,000	180,000	—	18,000	1,651,000	1,084,000	6,075,000
Wyoming.....	60,000	2,675,000	4,160,000	13,000	120,000	—	—	1,100,000	720,000	—	—	—	—	—	—	—
Alaska.....	—	—	—	—	—	—	—	—	—	—	—	463,000	—	—	—	—
Hawaii.....	—	—	—	—	—	—	—	—	—	—	—	308,000	—	—	—	—
Porto Rico.....	—	—	—	—	—	—	—	—	—	—	—	120,000	—	—	—	—
Philippine Islands.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total.....	3,125,713,000	895,443,000	1,126,765,000	33,039,000	162,227,000	24,510,000	12,066,000	388,811,000	60,978,000	984,849,000	14,116,000	1,226,000	511,000	47,782,000	57,216,000	321,363,000

STATISTICS OF AGRICULTURE. — (Cont.)

STATISTICS OF MINING, 1910.

AREA.

GROWTH IN POPULATION.

STATES AND TERRITORIES.	Milk Cows.	Other Cattle.	Horses.	Mules.	Coal, Tons.	Pig Iron, Tons.	Copper, Pounds.	Gold, Dollars.	Silver, Dollars.	Petroleum, Barrels.	Lead, Tons.	Square Miles.	1860.	1880.	1900.	1910.
Alabama.....	289,000	528,000	171,000	253,000	16,112,000	1,939,000	—	34,000	1,886,000	—	1,000	51,998	964,201	1,262,505	1,828,697	2,138,693
Arizona.....	29,000	626,000	115,000	6,000	—	—	297,251,000	3,149,000	—	—	—	118,956	485,450	592,525	1,911,544	1,571,149
Arkansas.....	361,000	600,000	200,000	215,000	1,906,000	—	—	—	—	—	36,000	53,355	879,484	864,094	1,485,053	2,675,549
California.....	462,000	1,120,000	420,000	83,000	45,760,000	19,715,000	994,000	78,111,000	3,000	—	—	108,348	314,277	191,327	739,702	739,702
Colorado.....	161,000	1,125,000	250,000	12,000	11,914,000	9,708,000	20,707,000	4,505,000	—	240,000	—	4,965	460,147	622,700	908,420	1,114,756
Connecticut.....	187,000	81,000	62,000	—	—	—	—	—	—	—	—	2,370	112,216	146,608	184,785	202,322
Delaware.....	85,000	22,000	88,000	6,000	—	—	—	—	—	—	—	58,666	140,424	269,438	528,542	752,619
Florida.....	95,000	712,000	55,000	21,000	—	—	—	—	—	—	—	59,265	1,057,286	1,542,180	2,216,391	2,609,121
Georgia.....	314,000	673,000	141,000	248,000	177,000	—	1,000	86,000	3,980,000	—	100,000	84,313	1,711,951	3,077,871	4,821,550	5,698,591
Idaho.....	81,000	340,000	163,000	2,000	—	—	6,878,000	1,097,000	—	—	300	66,355	1,850,428	1,978,801	2,516,462	2,700,876
Illinois.....	1,232,000	1,974,000	1,655,000	152,000	45,900,000	2,676,000	—	—	1,000	83,143,000	300	56,665	1,711,951	3,077,871	4,821,550	5,698,591
Indiana.....	1,020,000	1,020,000	547,000	94,000	18,390,000	—	Missouri, 604,000	—	—	2,160,000	—	66,354	1,850,428	1,978,801	2,516,462	2,700,876
Iowa.....	1,570,000	3,611,000	1,447,000	47,000	7,928,000	—	—	—	—	—	1,300	674,913	1,624,615	2,921,553	2,924,771	—
Kansas.....	757,000	3,240,000	1,175,000	134,000	4,921,000	—	—	—	—	1,129,000	1,300	82,158	197,206	996,096	1,470,495	1,690,949
Kentucky.....	894,000	665,000	407,000	207,000	14,628,000	101,000	—	Other states, \$929,000	—	469,000	—	40,598	1,155,684	1,648,690	2,427,174	2,289,905
Louisiana.....	200,000	480,000	238,000	178,000	—	—	—	—	—	6,481,000	—	48,506	708,002	999,946	1,881,625	1,656,888
Maine.....	175,000	189,000	119,000	—	5,217,000	—	—	—	—	—	Other states, 2,450 tons	38,040	628,279	648,986	694,466	742,371
Maryland.....	192,000	138,000	160,000	20,000	826,000	—	—	—	—	—	—	12,836	687,046	824,048	1,188,044	1,516,666
Massachusetts.....	392,000	95,000	746,000	4,000	1,535,000	—	221,403,000	—	178,000	—	—	8,756	1,231,066	1,738,055	2,805,846	3,866,416
Michigan.....	160,000	88,000	84,000	—	—	—	—	—	—	—	—	59,990	749,118	1,686,987	2,420,982	2,810,178
Minnesota.....	1,125,000	1,228,000	767,000	9,000	—	—	—	—	—	—	—	84,682	172,023	750,778	1,751,394	2,075,708
Mississippi.....	830,000	577,000	265,000	290,000	2,982,000	—	—	—	—	—	—	46,865	791,305	1,181,597	1,651,270	1,797,114
Missouri.....	925,000	2,165,000	1,005,000	344,000	2,921,000	—	—	—	—	—	61,500	69,120	1,812,012	2,165,880	3,106,063	3,898,885
Montana.....	80,000	842,000	319,000	5,000	—	—	—	—	—	—	1,800	77,520	28,841	452,402	1,066,800	1,192,214
Nebraska.....	879,000	8,040,000	1,045,000	72,000	California, 101,000 tons	—	283,078,000	3,781,000	6,568,000	—	—	116,690	6,857	62,266	42,383	81,874
Nevada.....	19,000	404,000	98,000	4,000	—	Other states, 101,000 tons	64,495,000	18,879,000	6,798,000	—	2,200	9,341	326,073	346,991	411,588	480,572
New Hampshire.....	122,000	98,000	59,000	—	12,000	—	—	—	—	—	—	8,224	672,035	1,131,116	1,833,661	2,537,167
New Jersey.....	190,000	82,000	103,000	5,000	—	265,000	—	—	—	—	1,700	29,204	425,304	—	—	—
New Mexico.....	29,000	901,000	133,000	8,000	3,505,000	—	3,785,000	482,000	456,000	—	—	8,580,735	5,028,871	7,268,894	9,113,614	—
New York.....	1,771,000	889,000	717,000	4,000	—	1,983,000	—	68,000	—	—	—	52,426	992,622	1,399,750	1,998,810	2,206,287
North Carolina.....	297,000	49,000	192,000	151,000	—	—	191,000	—	5,000	—	—	70,837	—	—	91,146	577,056
North Dakota.....	247,000	616,000	112,000	8,000	299,000	—	—	—	—	9,916,000	—	41,040	2,839,511	8,198,062	4,157,545	4,167,121
Ohio.....	947,000	978,000	977,000	22,000	34,210,000	5,752,000	—	—	—	52,029,000	1,800	70,057	—	—	790,891	1,651,135
Oklahoma.....	855,000	1,687,000	804,000	101,000	2,646,000	—	—	—	—	—	—	96,099	52,465	174,768	413,586	673,709
Oregon.....	174,000	698,000	808,000	8,000	68,000	—	22,000	673,000	20,000	—	—	43,126	2,906,215	4,882,891	6,302,115	7,665,111
Pennsylvania.....	1,140,000	917,000	619,000	43,000	225,007,000	11,272,000	741,000	—	—	8,795,000	—	1,248	174,620	276,531	428,556	542,610
Rhode Island.....	140,000	—	—	—	—	—	—	—	—	—	—	80,989	708,708	995,577	1,840,316	1,515,400
South Carolina.....	656,000	1,341,000	612,000	10,000	—	—	—	5,402,000	64,000	—	—	77,615	1,160,801	1,742,252	401,570	583,888
South Dakota.....	321,000	565,000	324,000	202,000	7,121,000	398,000	16,692,000	3,000	44,000	—	—	29,022	—	—	2,920,216	—
Tennessee.....	821,000	7,131,000	1,369,000	700,000	1,892,000	—	125,181,000	4,062,000	5,652,000	5,899,000	57,000	265,896	604,215	1,591,439	3,014,710	8,906,542
Texas.....	321,000	7,131,000	1,369,000	700,000	1,892,000	—	125,181,000	4,062,000	5,652,000	5,899,000	57,000	84,290	—	—	276,749	373,351
Utah.....	88,000	327,000	130,000	3,000	2,515,000	—	—	—	—	—	—	9,564	815,098	882,286	343,641	355,956
Vermont.....	297,000	377,000	323,000	74,000	6,505,000	445,000	100,000	1,000	—	—	100	42,627	1,596,318	1,512,565	1,854,154	2,061,612
Virginia.....	205,000	358,000	33,000	5,000	3,912,000	—	65,000	788,000	111,000	—	—	69,127	—	—	518,103	1,141,993
West Virginia.....	247,000	511,000	197,000	12,000	61,611,000	175,000	—	—	—	11,752,000	4,000	241,770	—	61,847	1,221,119	—
Wisconsin.....	1,506,000	1,081,000	669,000	5,000	—	—	—	—	—	—	—	56,066	775,581	1,815,497	2,069,042	2,933,860
Wyoming.....	27,000	959,000	148,000	2,000	7,683,000	—	217,000	8,000	1,000	—	—	97,914	—	—	92,581	145,965
Alaska.....	—	—	—	—	—	—	4,811,000	16,127,000	83,000	—	—	590,584	—	—	68,592	64,356
Hawaii.....	—	—	—	—	—	—	—	—	—	—	—	6,430	—	—	154,000	71,900
Porto Rico.....	—	—	—	—	—	—	—	—	1,000	—	—	8,363	—	—	1,118,012	—
Philippine Islands.....	—	—	—	—	—	—	2,000	80,000	1,000	—	—	115,026	—	—	8,000,000	7,635,426
Canal Zone, Guam, D.C., etc.*.....	—	—	—	—	—	—	—	—	—	—	—	62,561	—	—	—	581,812
Total.....	21,801,000	47,279,000	21,040,000	4,123,000	511,506,000	27,304,000	1,080,160,000	94,569,000	31,103,000	209,556,000	372,000	3,805,074	31,218,021	10,571,430	84,578,151	101,182,712

INDEX—PRONUNCIATIONS.

KEY TO PRONUNCIATION—VOWELS: *ā* in *āle*; *ā* in *senāte*; *ā* in *ām*; *ā* in *cāre*; *ā* in *ārm*; *ā* in *ask*; *ā* in *all*; *au* in *author*. *ē* in *ēve*; *ē* in *ēnd*; *ē* in *fērno*; *e* in *they*. *i* in *ice*; *i* in *yll*; *i* in *pique*. *ō* in *old*; *ō* in *odd*; *ō* in *or*; *ō* in *do*; *ō* in *son*. *ū* in *use*; *ū* in *up*; *ū* in *urn*; *u* in *rude*; *u* in *full*; *ua* = *wa*; *ue* = *we*. *ȳ* in *bȳ*; *ȳ* in *hȳmn*. *ou* as in *out*; *oi* as in *oil*.

CONSONANTS: *c* or *e* as in *can*; *ç* as in *cent* (*c* as in *can*, if unmarked); *g* as in *go*; *g* as in *gem* (*g* as in *go*, if unmarked); *n* = nasal *n*, as in *Toulon* (like *ong*); *ŋ* = *ng*; *ñ* like *ny* in *barnyard*. *qu* = *kw*, *s* as in *so*; *z* = *z*; *th* as in *this*. *Italic letters* are silent. *Short vowels* are not usually marked.

Geographical names are divided into syllables and place of accent is marked; but for the sake of simplicity and ease of reading, diacritical marks are often omitted when not necessary to prevent error. All index numbers refer to pages.

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RECENT GEOGRAPHICAL EVENTS.

In the Far East.—During recent years the eyes of the world have been turned to eastern Asia, the scene of the Japanese-Russian War, which was happily ended by the "Peace of Portsmouth," September 5, 1905.

The map shows the general disposition of territory as made by the treaty at Portsmouth, N. H. Japan has Port Arthur; the city of Dalny; the control of the railroad as far north as Kwangchengtse; the southern half of the island of Sakhalin,

to the 50th parallel of latitude; and the suzerainty of Korea.

Japan.—It is interesting to note that Japan's long chain of islands, to the middle of Sakhalin, corresponds in latitude to the entire extent of the eastern United States from northern Florida to Maine and the Gulf of St. Lawrence. Fifty years ago Japan's intercourse with the outside world began with Commodore Perry's negotiation of a treaty opening the islands to American commerce. Her progress and development and her conduct of the war with Russia have been most remarkable. With her 50,000,000 inhabitants she now ranks as one of the seven Great Powers of the World.

Sakhalin is situated much like Newfoundland in latitude and its relation to the continent. The Japan current curling around the southern point softens the climate. The half of the island acquired by Japan is the only valuable part of it. It has great quantities of coal, timber and iron. Enormous shoals of fish, especially herring and salmon, swarm in its waters. The annual number of herring taken is said to amount to five hundred million.

Manchuria is regained for China—her richest dependency, with its productive valleys of the Liao, Sungari, and Nonni rivers; its forests of timber; its coal and minerals; its sacred walled city of Mukden, the home of the Manchus and the capital; with Kwangchengtse, the largest city and greatest market, and terminus of the railroad controlled by Japan; and Harbin and Tsitsihar in the north. The population is largely Chinese.

Korea, the ancient "Hermit Kingdom," now comes under the control of Japan. With a stronger, progressive government and the not improbable immigration of many Japanese, the new Korea is likely to be much changed from the old.

Russia, empire of vast extent in Europe and Asia and of many peoples, is in the throes of revolution. What changes in government and condition may result no one can foretell.

The Gregorian Calendar is to be adopted by Russia, which alone has continued to use the Julian calendar, now thirteen days behind that of other civilized countries. This has caused much inconvenience. The next Russian February is to be shortened by thirteen days, and March is to begin in the new style. It was in 1751 that in England an act was passed correcting the calendar, omitting eleven days (the divergence at that time between the two calendars) after September 2, 1752 and making the ensuing day the 14th.

Norway.—It is interesting to note that Norway, now separate in its government from Sweden, has received Prince Charles of Denmark as its king entitled Haakon VII. The queen is the youngest daughter of King Edward VII. of England.



MAP OF JAPAN, KOREA, MANCHURIA, ETC. (By courtesy of *The Independent*.)

Irrigation.—An illustration of what irrigation is accomplishing throughout the arid regions of the West is furnished by the creation—in southern Idaho by the United States Government, on sites absolutely waste—of two new towns seven miles apart, Heyburn and Rupert, town lots being sold to highest bidders. It is expected that the great irrigating canals which the government is constructing at a cost of \$3,000,000 will make the region very productive.

The Republic of Panama lies between the Caribbean Sea and the Pacific Ocean, and extends from Costa Rica to Colombia, about 480 miles. Its area is 33,302 square miles, a little greater than that of Maine. It is now one of the Central American States of North America. It includes the Isthmus of Panama—the narrow portion of the state north of the Gulf of Panama; the shortest distance across is 37 miles at San Blas Bay. It has an estimated population of about 228,000, combining Spanish, Indian, and Negro elements, and a few immigrants from the United States and from European countries.

The chief towns are the capital, Panama (pop. 30,000), Colon, Porto Bello, David (pop. 9,000), and Boca del Toro.

The surface is mountainous. The greatest elevation of the Sierra de Veragua is Mount Chiriqui, an extinct volcano, 11,260 feet high.

The soil is of great fertility. The tropical vegetation is luxuriant. One of the chief products is the banana, which grows freely on the lands adjacent to the Chiriqui Lagoon. Other products



are caoutchouc, coffee, cocoa-nuts, Brazil nuts, mahogany and other woods. Cattle raising is carried on in some of the provinces, and hides are an important article of export.

The Panama Railroad crosses the Isthmus from Colon to Panama, a distance of 47 miles.

The Inter-Oceanic Canal across the Isthmus is being constructed by the United States, which has from the State of Panama a grant of the use and control of a zone five miles wide on each side of the canal route from Colon to Panama. This strip of territory is known as the Panama Canal Zone.

United States Territories, etc.—The United States now has two "Territories"—Alaska and Hawaii.

Hawaii has a fully organized territorial government, and is represented by a delegate in Congress. Alaska has a governor appointed by the President, and a judiciary system under special act of Congress, but no Legislature.

Porto Rico is governed by a special act of Congress approved April 12, 1900. Under this act the lower house of the Legislature is elected by the people, but the upper house, or, more properly,

the "Executive Council," is composed of officers appointed by the President.

The Philippine Islands have a Legislature which is composed of two houses—the Philippine Commission or upper house, and the Philippine Assembly or lower house. The Legislature enacts the laws for the islands as a whole. The Commission, appointed by the President, comprises the Governor General and eight Commissioners. Four of the Commissioners are Americans, and the other four are Filipinos. Members of the Assembly are elected by the people.

Guam has a governor appointed by the President. In Tutuila, with the two other small islands of the Samoan group belonging to the United States, the naval officer in command at Pago Pago is ex-officio governor.

Earthquake and Fire at San Francisco.—On April 18, 1906, there was a destructive earthquake at San Francisco, followed instantly by fire which utterly destroyed the most valuable parts



Buildings wrecked by the earthquake. (From a photograph.)

of the city. It was the greatest calamity of its kind in the history of the United States. It is thought that about 300 persons were killed and more than 200,000 made homeless. The fire swept over a space of four square miles. Nearly all the great buildings of the city were ruined. Hundreds of millions of value were wiped out of exist-

ence. The spectacle was appalling.

As to the cause of the earthquake: Two main classes of earthquakes are recognized—(1) volcanic quakes and (2) dislocation quakes. In the latter, when rock strata have been broken by great rifts called faults, the portion on one side of the break has either risen or fallen with reference to that



Fissures made by earthquake. (From a photograph.)

on the other side. When the strain becomes too great for the sides to resist, a slip occurs. Great masses of rock move along on other masses until, with a jar almost inconceivably great, they suddenly come to rest. The vibrations spread in every direction. The San Francisco earthquake is supposed to be of the second, or dislocation, class.

The Messina Earthquake.—In the early morning of December 28, 1908, an earthquake occurred in the island of Sicily and in Calabria, the most southerly province of the mainland of Italy, which in the destruction of life and property was one of the greatest calamities that has befallen the human race within the history of the world.

The city of Messina (population 150,000 in 1901), in the north-east corner of Sicily, and Reggio (population 45,000 in 1901), on the mainland, nearly opposite and separated from Messina by the Strait of Messina, were, with the greater part of their population, almost entirely destroyed. The shock was so severe that within a few moments these two cities, besides many smaller places within the area of the earthquake, were little more than heaps of ruins, and the fires that then broke out among the wrecked buildings soon completed the work of destruction.

A great tidal wave about 35 feet high, which was probably caused by rapid alteration in the bed of the sea, rushed in upon the land almost simultaneously with the earthquake, engulfing the lower sections along the water front. The destruction in Reggio was even greater than in Messina, as hardly a building remained in what was once a prosperous city.

Both Messina and Reggio are located in a region of volcanic activity, and the two cities have previously suffered much damage from earthquakes. Sometimes the earthquakes have been accompanied by eruptions of Etna, Vesuvius, or Stromboli, but these volcanoes did not give evidence of serious activity at the time of this great convulsion of the earth's surface.

This appalling calamity aroused the sympathy of the whole civilized world, and relief for the survivors in the form of money, food, clothing, and medical supplies was generously contributed. Sailors from European warships in the harbor gave great aid to the stricken cities, and their heroic work was the means of saving many who were wounded or buried alive beneath the ruins. Several of the warships of our Pacific fleet were near Suez at the time of the catastrophe, and these were hurriedly ordered to Messina, where they also rendered valuable assistance.

Discovery of the North Pole.—After twenty-three years of service in leading polar expeditions, Commander R. E. Peary, U.S.N., reached the North Pole on April 21, 1908. The point on the earth's surface which we call the *North Pole* is not on land, but on a frozen part of the Arctic Ocean. Soundings made by Peary in the vicinity of the North Pole show that the ocean there is over 9000 feet deep.

The student should remember that the North Pole is simply the northern end of the earth's axis of rotation. At the pole, the sun is above the horizon for six months, and below the horizon for the following six months. Thus the days and nights are each six months long. Doubtless you have noticed in our own country that our shadow is longest at morning and evening, and shortest at noon. During any twenty-four hours at the pole there would be no change in the length of shadow. The shadow of a person would travel in a complete circle in that time.

Discovery of the South Pole.—In recent years there have been several attempts to reach the South Pole. These expeditions have revealed the existence of a large continent within the Antarctic circle.

While many explorers had sailed around the wide sheet of ice which fringes the Antarctic continent, yet Captain R. F. Scott, at the head of an English expedition, first explored the mainland itself in 1901-1904.

In 1909 Lieutenant Ernest Shackleton, who was a member of the Scott expedition, led another exploring party toward the South Pole. Shackleton reached latitude of $88^{\circ} 23'$ south, which was 111 miles from the pole. At this point he stood upon a level, ice-covered plateau, 11,600 feet high, which extended southward toward the South Pole. This same expedition discovered the South Magnetic Pole in latitude $72^{\circ} 25'$ south and longitude $155^{\circ} 16'$ east.

On December 14, 1911, Roald Amundsen, in command of a Norwegian expedition, reached the South Pole, which is at an elevation of 10,500 feet. At the same time an expedition under Captain Scott made extensive explorations of the South Pole region.

The Antarctic continent is an uninhabited waste, extremely cold, and with very little plant and animal life. The ice sheet which covers the land moves slowly down to the sea, and extends beyond the coast as a floating ice plain, hundreds of feet deep, and in places hundreds of miles wide. At the outer edge, great mountains of ice break away from the main body, forming enormous icebergs.

European Colonial Possessions in Africa.—Within the last few years, the unoccupied parts of Africa have been taken and added to the colonial possessions of European nations. Very nearly all of Africa is owned or controlled by the leading nations of Europe. The nations having the largest possessions in Africa are France, Great Britain, Germany, Belgium, and Portugal.

French Equatorial Africa, and most of the Sahara, and much of the Sudan are French colonial possessions, while the Mediterranean countries, Morocco, Algeria, and Tunis, are under French control. The main British possessions extend as an almost unbroken belt from the Mediterranean to the Cape of Good Hope. In 1909 Cape of Good Hope, Natal, Transvaal, and Orange River Colony were organized into the Union of South Africa. Now they form a practically self-governing part of the British Empire, like Canada and Australia. The leading German possessions are German East Africa, German South West Africa, and Kamerun.

By international agreements most of the disputes involving the colonial parts of Africa have been settled, and fairly definite boundary lines are being established. One of the latest territorial changes has been the cession of a large part of French Equatorial Africa to Germany, which increases the German territory of Kamerun by about 100,000 square miles. In exchange Germany recognizes the French claim to a protectorate over Morocco.

In September, 1911, Italy declared war against Turkey, and began at once to take possession of Tripoli, a poorly governed Turkish province in Africa. Italy claimed that the Turkish government was unjust to Italian commercial interests in Tripoli. Doubtless the result will be the Italian annexation of this province. Thus Italy will gain a territory almost four times her own size. The change from Turkish to Italian control will probably give greater prosperity and justice to the Arabs who inhabit Tripoli.

The Passing of the Absolute Monarchy.—Quite recently the governments of Russia, Turkey, and Persia have changed from absolute to limited monarchies. China, which has been an absolute monarchy for centuries, has made even a more radical change. A revolution, in 1912, the object of which was the establishment of China as a republic, was successful in overthrowing the monarchy. The power of despotic monarchs has been lessened, and more power given to the people. Now, there is very little of the world under the control of despotic rulers. In the most progressive nations, like the United States and Great Britain, the government is completely in the hands of the people; and gradually the governments of all countries are becoming more liberal and just.

POPULATION OF THE PRINCIPAL CITIES OF THE UNITED STATES.—1900 AND 1910.

	Pop. 1910.	Pop. 1900.		Pop. 1910.	Pop. 1900.		Pop. 1910.	Pop. 1900.		Pop. 1910.	Pop. 1900.
Aberdeen, S.D.	10,753	4,087	Dubuque, Iowa	38,494	36,297	Louisville, Ky.	223,928	204,731	Providence, R.I.	224,326	175,597
Akron, Ohio	69,067	42,728	Duluth, Minn.	78,466	52,969	Lowell, Mass.	106,294	94,969	Pueblo, Col.	44,395	28,157
Alameda, Cal.	23,383	16,464	Durham, N.C.	18,241	6,679	Lynchburg, Va.	29,494	18,891	Quincy, Ill.	36,587	36,252
Albany, N.Y.	100,263	94,151	East Liverpool, Ohio	20,387	16,485	Lynn, Mass.	89,336	68,513	Quincy, Mass.	32,642	23,899
Albuquerque, N.M.	11,020	6,238	Easton, Pa.	28,523	25,233	Macon, Ga.	40,665	23,272	Racine, Wis.	38,002	29,102
Alexandria, Va.	15,329	14,528	East Orange, N.J.	34,371	21,506	McKeesport, Pa.	42,694	34,227	Raleigh, N.C.	19,218	13,643
Allentown, Pa.	51,913	35,416	East St. Louis, Ill.	58,547	29,655	Madison, Wis.	25,531	19,164	Reading, Pa.	96,071	78,961
Alpena, Mich.	12,706	11,802	Eau Claire, Wis.	18,310	17,517	Malden, Mass.	41,404	33,664	Reno, Nev.	10,867	4,500
Altoona, Pa.	52,127	38,973	Elgin, Ill.	25,976	22,433	Manchester, N.H.	70,063	56,987	Richmond, Ind.	22,324	18,226
Amsterdam, N.Y.	31,267	20,929	Elizabeth, N.J.	73,409	52,130	Manistee, Mich.	12,381	14,260	Richmond, Va.	127,628	85,050
Anaconda, Mont.	10,134	9,453	Elmira, N.Y.	37,176	35,072	Mankato, Minn.	10,365	10,599	Roanoke, Va.	34,874	21,495
Anderson, Ind.	22,476	20,178	El Paso, Tex.	39,279	15,906	Mansfield, Ohio	20,768	17,640	Rochester, N.Y.	218,149	162,608
Annapolis, Md.	8,609	8,525	Erie, Pa.	66,525	52,733	Marinette, Wis.	14,610	16,195	Rockford, Ill.	45,301	31,051
Ann Arbor, Mich.	14,817	14,509	Escanaba, Mich.	13,194	9,549	Marquette, Mich.	11,503	10,058	Rock Island, Ill.	24,335	19,493
Anniston, Ala.	12,794	9,695	Evanston, Ill.	24,978	19,259	Medford, Mass.	23,150	18,244	Rome, Ga.	12,090	7,291
Ansonia, Conn.	15,152	12,681	Evansville, Ind.	69,647	59,007	Memphis, Tenn.	131,105	102,320	Rome, N.Y.	20,497	15,343
Appleton, Wis.	16,773	15,085	Everett, Mass.	33,484	24,336	Menominee, Mich.	10,507	12,818	Rutland, Vt.	13,546	11,499
Argenta, Ark.	11,138	5,140	Everett, Wash.	24,814	7,838	Meriden, Conn.	27,265	24,296	Sacramento, Cal.	44,696	29,282
Asheville, N.C.	18,762	14,694	Fall River, Mass.	119,295	104,863	Meridian, Miss.	23,285	14,050	Saginaw, Mich.	50,510	42,345
Astoria, Ore.	9,599	8,381	Fargo, N.D.	14,331	9,589	Milwaukee, Wis.	373,857	285,315	St. Joseph, Mo.	77,403	102,979
Atchison, Kan.	16,429	15,722	Fitchburg, Mass.	37,826	31,531	Minneapolis, Minn.	301,408	202,718	St. Louis, Mo.	687,029	575,238
Athens, Ga.	14,913	10,245	Flint, Mich.	38,550	13,103	Missoula, Mont.	12,869	4,366	St. Paul, Minn.	214,744	163,065
Atlanta, Ga.	154,839	89,872	Fond du Lac, Wis.	18,797	15,110	Mobile, Ala.	51,521	38,469	Salem, Mass.	43,697	35,956
Atlantic City, N.J.	46,150	27,838	Fort Scott, Kan.	10,463	10,322	Moline, Ill.	24,199	17,248	Salem, Ore.	14,094	4,258
Auburn, Me.	15,064	12,951	Fort Smith, Ark.	23,975	11,587	Montgomery, Ala.	38,136	30,346	Salt Lake City, Utah	92,777	53,531
Auburn, N.Y.	34,608	30,345	Fort Wayne, Ind.	63,933	45,115	Montpelier, Vt.	7,856	6,266	San Antonio, Tex.	96,614	53,321
Augusta, Ga.	41,040	39,441	Fort Worth, Tex.	73,312	26,688	Mount Vernon, N.Y.	30,919	21,228	San Diego, Cal.	39,578	17,700
Augusta, Me.	13,211	11,683	Frankfort, Ky.	10,465	9,487	Muncie, Ind.	24,005	20,942	San Francisco, Cal.	416,912	342,782
Aurora, Ill.	29,807	24,147	Frederick, Md.	10,411	9,256	Muskegon, Mich.	24,062	20,818	San Jose, Cal.	28,946	21,500
Austin, Tex.	29,890	22,258	Fresno, Cal.	24,892	12,470	Muskogee, Okla.	25,278	4,254	Santa Fe, N.M.	5,072	5,603
Baltimore, Md.	558,485	508,957	Galesburg, Ill.	22,089	18,607	Nashua, N.H.	26,005	23,898	Sault Ste. Marie, Mich.	12,615	10,538
Bangor, Me.	21,803	21,850	Galveston, Tex.	36,981	37,789	Nashville, Tenn.	110,364	80,865	Savannah, Ga.	65,064	54,244
Barre, Vt.	10,734	8,448	Gloucester, Mass.	24,308	26,121	Natchez, Miss.	11,791	12,210	Schenectady, N.Y.	72,826	31,682
Baton Rouge, La.	14,897	11,269	Gloversville, N.Y.	20,642	18,349	New Albany, Ind.	20,629	20,628	Scranpton, Pa.	129,867	102,026
Battle Creek, Mich.	25,267	18,563	Grand Forks, N.D.	12,478	7,652	Newark, N.J.	347,469	246,070	Seattle, Wash.	237,194	80,671
Bay City, Mich.	45,166	27,628	Grand Island, Neb.	10,326	7,554	Newark, Ohio	25,404	18,157	Sedalia, Mo.	17,822	15,231
Bayonne, N.J.	55,545	32,722	Grand Rapids, Mich.	112,571	87,565	New Bedford, Mass.	96,652	62,442	Selma, Ala.	13,649	8,713
Beaumont, Tex.	20,640	9,427	Great Falls, Mont.	13,948	14,930	New Britain, Conn.	43,916	25,998	Sheboygan, Wis.	26,398	22,962
Belleville, Ill.	21,122	17,484	Green Bay, Wis.	25,236	18,684	New Brunswick, N.J.	23,388	20,006	Shenandoah, Pa.	25,774	20,321
Bellingham, Wash.	24,208	11,062	Greensboro, N.C.	15,895	10,035	Newburgh, N.Y.	27,805	24,943	Sheridan, Wyo.	8,408	1,550
Beloit, Wis.	15,125	10,436	Greenville, S.C.	15,741	11,860	New Castle, Pa.	36,280	28,339	Shreveport, La.	28,015	16,013
Berkeley, Cal.	40,434	13,214	Hagerstown, Md.	10,507	13,591	New Haven, Conn.	133,065	108,027	Sioux City, Iowa	47,828	33,111
Berlin, N.H.	11,780	8,886	Hamilton, Ohio	35,279	23,914	New London, Conn.	19,659	17,548	Sioux Falls, S.D.	14,094	10,266
Biddeford, Me.	17,079	16,145	Hammond, Ind.	20,925	12,376	New Orleans, La.	339,075	287,104	Somerville, Mass.	77,236	61,643
Billings, Mont.	10,031	3,221	Hannibal, Mo.	18,341	12,780	Newport, Ky.	30,309	28,301	South Bend, Ind.	53,684	35,999
Binghamton, N.Y.	48,443	39,647	Harrisburg, Pa.	64,168	50,167	Newport, R.I.	27,149	22,441	South Omaha, Neb.	26,259	26,001
Birmingham, Ala.	132,685	38,415	Hartford, Conn.	98,915	79,850	Newport News, Va.	20,205	19,635	Spokane, Wash.	17,517	11,395
Bismarck, N.D.	5,443	3,319	Hattiesburg, Miss.	11,733	4,175	New Rochelle, N.Y.	28,867	14,720	Spokane, Wash.	104,402	36,848
Bloomington, Ill.	25,768	23,286	Haverhill, Mass.	44,115	37,175	Newton, Mass.	39,806	33,587	Springfield, Ill.	51,678	34,159
Boise, Ida.	17,358	5,957	Hazleton, Pa.	25,452	14,230	New York, N.Y.	4,766,883	3,437,202	Springfield, Mass.	88,926	62,059
Boston, Mass.	670,585	560,892	Helena, Mont.	12,515	10,770	Manhattan Boro., N.Y.	2,331,542	1,850,093	Springfield, Mo.	35,201	23,267
Bridgeport, Conn.	102,054	70,996	Henderson, Ky.	11,452	10,272	Brooklyn, N.Y.	1,634,351	1,166,582	Springfield, Ohio	46,921	38,253
Bridgeport, Mass.	56,878	40,063	Hoboken, N.J.	70,324	59,304	Bronx, N.Y.	430,980	200,507	Stamford, Conn.	25,138	15,997
Brookline, Mass.	27,792	19,935	Holyoke, Mass.	57,730	45,712	Queens, N.Y.	284,041	152,999	Steubenville, Ohio	22,391	14,349
Brunswick, Ga.	10,182	9,081	Honolulu, Hawaii	52,183	39,306	Richmond, Va.	85,969	67,021	Stillwater, Minn.	10,198	12,318
Buffalo, N.Y.	423,715	352,387	Hot Springs, Ark.	14,434	9,973	Niagara Falls, N.Y.	30,445	19,457	Stockton, Cal.	23,253	17,506
Burlington, Ia.	24,324	23,201	Houston, Tex.	78,800	44,633	Norfolk, Va.	67,452	48,624	Superior, Wis.	40,384	31,091
Burlington, Vt.	20,468	18,640	Huntington, W. Va.	31,161	11,923	Norristown, Pa.	27,875	22,265	Syracuse, N.Y.	137,249	108,374
Butte, Mont.	39,165	30,470	Hutchinson, Kan.	16,364	9,379	North Adams, Mass.	22,019	24,200	Tacoma, Wash.	83,743	37,714
Cambridge, Mass.	104,839	91,886	Indianapolis, Ind.	233,650	169,164	Northampton, Mass.	19,431	18,643	Tallahassee, Fla.	5,018	2,981
Camden, N.J.	94,538	75,985	Ironwood, Mich.	12,821	9,705	Norwich, Conn.	20,367	17,251	Tampa, Fla.	37,782	15,839
Canton, Ohio	50,217	30,667	Ishpeming, Mich.	12,448	13,255	Oakland, Cal.	150,174	66,960	Taunton, Mass.	34,259	31,036
Cañon City, Nev.	2,466	2,100	Jackson, Mich.	31,433	25,180	Ogden, Utah	25,580	16,313	Terre Haute, Ind.	58,157	36,673
Cedar Rapids, Ia.	32,811	25,656	Jackson, Miss.	21,262	7,816	Oklahoma City, Okla.	64,205	10,037	Toledo, Ohio	168,407	131,822
Charleston, S.C.	58,833	55,807	Jackson, Tenn.	15,779	14,511	Olympia, Wash.	6,996	3,863	Topeka, Kan.	43,684	33,608
Charleston, W. Va.	22,996	11,009	Jacksonville, Fla.	57,699	28,429	Omaha, Neb.	124,096	102,555	Trenton, N.J.	96,815	73,307
Charlotte, N.C.	34,014	18,091	Jamestown, N.Y.	31,297	22,892	Orange, N.J.	29,630	24,141	Trinidad, Col.	10,204	5,345
Chattanooga, Tenn.	44,604	30,154	Jefferson City, Mo.	11,850	9,604	Oshkosh, Wis.	33,062	28,284	Troy, N.Y.	76,813	60,651
Chelsea, Mass.	32,452	34,072	Jersey City, N.J.	267,719	206,433	Oswego, N.Y.	23,368	22,199	Tucson, Ariz.	13,193	7,631
Chester, Pa.	38,537	33,988	Johnstown, Pa.	55,482	35,936	Ottumwa, Iowa	22,012	18,197	Utica, N.Y.	74,419	56,383
Cheyenne, Wyo.	11,320	14,087	Joliet, Ill.	34,670	29,353	Owensboro, Ky.	16,011	13,189	Vicksburg, Miss.	20,814	14,834
Chicago, Ill.	2,185,283	1,698,575	Joplin, Mo.	32,073	26,023	Paducah, Ky.	22,760	19,446	Virginia, Minn.	10,473	2,962
Chicopee, Mass.	25,401	19,167	Kalamazoo, Mich.	39,437	24,404	Parkersburg, W. Va.	17,842	11,703	Waco, Tex.	26,425	20,686
Cincinnati, Ohio	363,591	325,902	Kansas City, Kan.	82,331	51,418	Pasadena, Cal.	30,291	9,117	Walla Walla, Wash.	19,364	10,049
Cleveland, Ohio	560,663	381,768	Kansas City, Mo.	248,381	163,752	Passaic, N.J.	54,773	27,777	Waltham, Mass.	27,834	23,481
Clinch, Ia.	25,577	22,698	Keene, N.H.	10,068	9,105	Paterson, N.J.	125,600	105,171	Washington, D.C.	331,069	278,718
Coches, N.Y.	24,709	23,910	Kenosha, Wis.	21,371	11,006	Pawtucket, R.I.	51,622	39,231	Waterbury, Conn.	73,141	45,859
Colorado Spr's, Col.	29,078	21,085	Key West, Fla.	19,945	17,114	Pensacola, Fla.	22,982	17,747	Waterloo, Iowa	26,693	12,580
Columbia, S.C.	26,319	21,108	Kingston, N.Y.	25,908	24,535	Peoria, Ill.	66,950	56,100	Watertown, N.Y.	26,730	21,696
Columbus, Ga.	20,554	17,614	Knoxville, Tenn.	36,346	32,637	Perth Amboy, N.J.	32,121	17,699	Waterville, Me.	11,458	9,477
Columbus, Ohio	181,511	125,560	Laconia, N.H.	10,183	8,042	Petersburg, Va.	24,127	21,810	Wausau, Wis.	16,560	12,354
Concord, N.H.	21,497	19,632	La Crosse, Wis.	30,417	28,895	Philadelphia, Pa.	1,540,008	1,293,097	Waycross, Ga.	14,485	5,910
Council Bluffs, Ia.	29,292	25,802	Lafayette, Ind.	20,081	18,116	Phoenix, Ariz.	11,134	5,544	West Hoboken, N.J.	35,403	23,094
Covington, Ky.	53,270	42,938	Lancaster, Pa.	47,227	41,459	Pierre, S.D.	8,656	2,306	Wheeling, W. Va.	41,641	38,878
Cumberland, Md.	21,839	17,128	Lansing, Mich.	31,229	16,485	Pine Bluff, Ark.	15,102	11,496	Wichita, Kan.	52,450	24,671
Dallas, Tex.	92,104	42,638	Laramie, Wyo.	8,237	8,207	Pittsburg, Kan.	14,755	10,112	Wilkes-Barre, Pa.	67,105	51,721
Danbury, Conn.	20,234	16,587	Laredo, Tex.	14,855	13,429	Pittsburg, Pa.	533,905	451,512	Williamsport, Pa.	31,860	28,757
Danville, Ill.	27,871	16,354	Lawrence, Kan.	12,374	10,862	Pittsburg, Mass.	32,121	21,766	Wilmington, Del.	87,411	76,508
Danville, Va.	19,020	16,520	Lawrence, Mass.	85,892	62,559	Plainfield, N.J.	20,550	15,369	Wilmington, N.C.	25,748	20,976
Davenport, Iowa	43,028	35,254	Leavenworth, Kan.	19,363	20,735	Pontiac, Mich.	14,532	9,769	Winona, Minn.	18,583	19,714
Dayton, Ohio	116,577	85,333	Leaweston, Me.	26,247	23,761	Port Huron, Mich.	18,863	19,158	Winston, N.C.	17,167	10,008
Decatur, Ill.	31,140	20,754	Lexington, Ky.	35,009	26,369	Portland, Me.	58,571	50,145	Woonsocket, R.I.	38,125	28,204
Denver, Col.	213,381	133,859	Lima, Ohio	30,508	21,723	Portland, Ore.	207,214	90,426	Worcester, Mass.	145,986	118,421
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LESSONS IN COMMERCIAL GEOGRAPHY.

To the Teacher.—The following paragraphs contain a review of those parts of the text that relate to production and trade, with enough new material to make each a complete lesson unit. The Roman numerals refer to lessons, the Arabic to paragraphs and pages. The index will be found especially helpful in finding material bearing on the lesson. Production and trade maps *made by the pupil* are the best means of teaching these subjects. Model maps are therefore given and material from which original maps may be made. The lessons provide for a year's course in commercial geography.

1. Production.—(Review XV.) What things do all men need? How do men secure them? Name some of them that we secure by agriculture; such articles are called "agricultural products." Name some articles that we get by mining; they are called "mineral products." Name some articles that we get from forests; these are called "forest products." When agricultural, mineral, and forest products are made up into new forms we call these forms "manufactured" products. Name some of them and tell from what they were made.

Think of all the countries of the world that you have studied; visit the great stores of our cities, and you will see how great is the number and variety of things that men produce by labor and skill. You will also notice that the products of one country are often very different from those of another. Name some agricultural products that are not produced in the United States; some mineral products; some forest products; some manufactured products. Can you explain why each of these is not produced in this country?

Written Work.—Make a list of twenty-five articles produced in the United States; classify as agricultural, mineral, forest, or manufactured product and tell in what part of the country each is produced.

2. Commerce.—It takes many men to produce all the things that the world needs. No one man can produce all the things that he himself needs, and few men need all the things that they themselves can produce. So it happens that men sell the part of their own productions that they do not need and buy of other men the productions that they do need. This buying and selling of products is going on all over the world and it makes commerce, or trade.

Transportation (XLIIB). The products which a man sells must be sent to places where they are needed. The products which he buys must be brought from places where they may be had. This carrying of products from one place to another is called "transportation."

Transportation is very important because without it there can be no commerce. A man would not buy coal in Pennsylvania, cotton in Texas, or iron in Alabama, unless he could transport these things to places where they can be used or sold. Those who carry goods for us must be paid. You will see then that what we pay for transportation makes goods cost more and that cheap transportation makes low prices and helps commerce.

In the parts of this book which we have completed we have learned the names and location of the different countries of the world; we have studied their mountains, rivers, and climates; we have learned also some things about the people of each country, their occupations, and the products of their labor.

We are now to make a special study of the products that we sell at home and to other countries, of those we buy at home and from other countries, and of their trade with one another. All this makes up the world's commerce. This study is called "Commercial Geography."

Written Work.—1. Write a paragraph on methods of transportation in use in different countries (see index under transportation). 2. Make a list of three classes of people engaged in production, three in trade, and three in transportation, and describe what each one does.

NORTH AMERICA.

3. North America ranks next Europe in the value of its productions and commerce. This is partly due to soil, climate, navigable rivers and good harbors, and partly to the genius and enterprise of its people.

(Review Map Studies, Physical North America.) What natural wealth do you find in the Pacific Highland? In the Laurentian Highland? Along the Atlantic Coast? In the Great Central Plain? In the Coastal Plains? What is the climate of the northern part of the continent? Of the southern part? Of the central part? Which part is most productive? Give reasons. Study the position of the rivers and lakes on physical map of North America. Which coast of the continent has the greatest trade? Why? Trace two great natural highways by which the products of the Great Central Plain may reach the coast.

The Atlantic Coast has many navigable rivers that lead far into the productive parts of the continent; it has better harbors than the western coast and is nearer to Europe, the chief market for American products. How would each of these facts affect the business and trade?

What people live in the northern part of the continent? What do they produce? What do you think of the value of their commerce? What people live in the southern part? What goods do they have to sell? The central part has about twenty times as many goods to sell as both the northern and southern parts together. How can this be explained?

Written Work.—1. On outline map of North America locate the chief natural divisions and largest lakes and rivers. 2. On similar map write the leading animal, vegetable and mineral productions of the continent.

4. The United States: Size, Situation, Resources.—Show the advantages of the position of the United States in North America (XXI, 1-2). What is its size? What are the chief products of each section of the Atlantic Plain (XXI, 7)? Of the Gulf Plain? Of the Mississippi Valley? Of the Pacific Highland? Of the Pacific Slope (XXI, 11, 15, 18)? Compare the products of the Mississippi Valley with those of the Pacific Highland; compare their climates. Turn to physical map of the United States, and locate the following: forests, coal, iron, lead, copper, gold, silver, corn and wheat, phosphates, fruits, petroleum, cattle, sheep, and fish.

Written Work.—1. On outline map of the United States locate each of the natural divisions and write in each the leading products. 2. Draw the leading lakes and rivers.

5. Settlement; Government; Civilization.—By what nations was our country settled (xxii, 3)? Describe its growth (XXII, 4). Population (XXII, 5, 6). How is it governed (XXIII)?

The development of the country has been greatly aided by immigrants from foreign countries at the rate of more than a half million a year. About one-third of these are skilled laborers—engineers, miners, carpenters, tailors, shoemakers, and others. Most of the rest are unskilled laborers. They have done much of the work on our railroads, tunnels, canals, and on the buildings in our great cities. We have great public school systems, state agricultural colleges, and many industrial and technical schools, as well as many private schools, colleges, and a number of great universities. All of these help to make good and useful citizens of our children and of the children of these foreigners who come to our land, and to give us our high rank in civilization.

What are the chief occupations among civilized nations? Among sav-

ages? Among nomadic, or wandering, races? Among half-civilized peoples? What are the leading occupations in the United States? How does education help a person in his occupation? Do you think we make better goods because of education? How does education improve our trade and ways of transportation?

Written Work.—1. Describe four stages of civilization, speaking of occupations, and trade, and giving examples of nations in each stage. **2.** Write a paragraph on Causes of Immigration to the United States (U. S. History).

6. The United States; Rank and Industries.—The United States produces more salable articles than any other nation. Name our six leading industries in order of value (Fig. 1). It also has more money in its banks than any other nation. This money belongs to the people; some of it is loaned to business men, and to city and state governments to carry on the business of the country, and to build great public works. The name "capital" is given to money which is thus invested in mills, factories, buildings, machinery, railroads, and other things which are used to produce more wealth. Vast amounts of capital are needed to carry on the business of the country, and it is the possession of capital that makes London, New York, and such great cities the great business centers of the world.

Eleven-twelfths of our products are consumed at home. The working people here live in better houses, eat better food, and wear better clothes

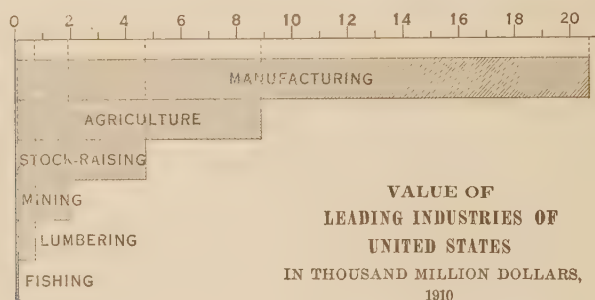


FIG. 1.

than in any other land. This is because wages are higher; and wages are higher because our industries are more profitable than in other countries. In shipping and foreign trade we rank lower than Great Britain and Germany, but in domestic trade and internal communication we are far in advance of them. At present much money and energy is being used to increase our merchant marine, as the ships carrying goods to and from our seaports are called. Why is this important? In what part of the country are agriculture, grazing, mining, manufacturing, and fishing mainly carried on (Review XXIV)? How does foreign commerce rank with other industries?

Written Work.—Write on any industry named in Fig. 1, describing its location and reasons therefor.

7. Wheat.—Agriculture is really our most important industry because it furnishes many raw materials for our manufactures. Flour could not be had without wheat, nor cloth without cotton, wool or other fiber. Of all our farm products, the grains, or "cereals," are the most valuable. They are the seeds of certain cultivated grasses, growing in all climates, from the Equator to the Arctic Circle. Grain, flour, and meal are called, in commerce, "breadstuffs." Wheat is "King of the Cereals." It grows best in rich, loamy soil, in a cool, moderately dry climate, and requires about three months to ripen. It is called "spring" or "winter" wheat according as it is planted in the spring or fall. In mild, dry climates the seed becomes much harder when ripe than in cool, moist climates. The best flour is made by mixing "hard" and "soft" wheat. Macaroni and

other similar foods are made from "hard" wheat. Wheat contains much of a sticky substance called "gluten," which holds the gases that cause bread to "rise"; thus wheat bread can be made "light." The world's wheat crop is about two bushels apiece for the world's people.

A bushel of wheat will make forty-five pounds of flour. If ten ounces of flour make a loaf of bread, how many loaves a year will the United States

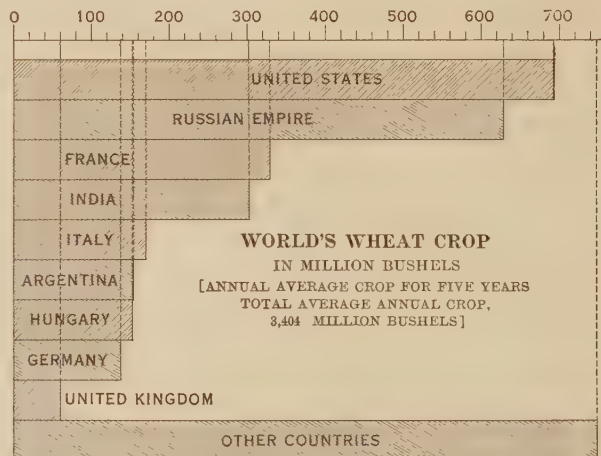


FIG. 2.

crop make for each person (Fig. 2)? How many will the crop of Great Britain make? Which nation can best sell to the other? Why might an increase in our population make our export of wheat less? About one-third of our wheat crop is exported as grain or flour to Europe. Find what nations buy it (Table II).

Written Work.—1. Write a paragraph about the wheat crop of the world, using Figure 2. **2.** On an outline map of the United States indicate by color or shading the states or parts of states producing wheat.

8. Corn, or maize, needs five months of warm weather to make a good crop. Does it probably grow best north or south of the wheat region? What people first raised corn? What name did they give it? In this country much corn is eaten in the form of bread or meal, but it is chiefly used for feeding cattle and hogs. Which of the Central States (XXXVI) lead in corn, beef, and pork? Thousands of cattle are every year driven north from the grazing regions to be fattened in the corn belt. In what forms that you know do we eat corn? Cornstarch, glucose (a kind of cheap sugar), whiskey, and alcohol are made from corn. What States

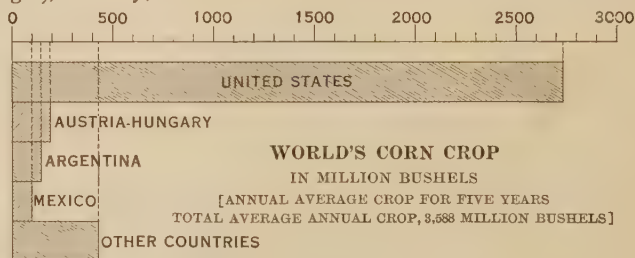


FIG. 3.

would be likely to make these articles? Corn is sown to produce fodder for milch cows. The stalks are sometimes chopped when green and kept fresh by storing them in "silos," or air-tight rooms. The corn thus kept is called "ensilage."

Written Work.—1. Find, by reference to Table VII, what States produce corn, and on an outline map show the corn-growing region of our country. **2.** Write a paragraph on the world's production of corn, using Figure 3.

9. Other Grains.—*Rye* is largely used as a food in Europe, but in this country chiefly for making whiskey. It grows on poorer soil than wheat or corn, and hence is raised in districts in the wheat belt where wheat cannot be profitably grown. About one-sixth of our small crop is exported to the countries of Northern Europe. Find the amount of our rye crop (Fig. 35). How does it compare with that of Russia? Of Germany? The greater part of our *oat* crop is fed to horses. Trade in oats is slight compared with the immense size of the crop, for oats are cheap and bulky to transport. For this reason they are grown in countries where they are needed. They grow in a colder climate than wheat. The increasing use of oatmeal for food has much decreased our export of oats. *Barley* is used mainly in making beer. Almost our entire crop is so used, but in Northern Europe it is used also for bread and for feeding horses. It will grow in a greater variety of soil and climate than any other grain. It ripens in a shorter time than even the hardest kind of oats. Hence it can be raised on high moun-

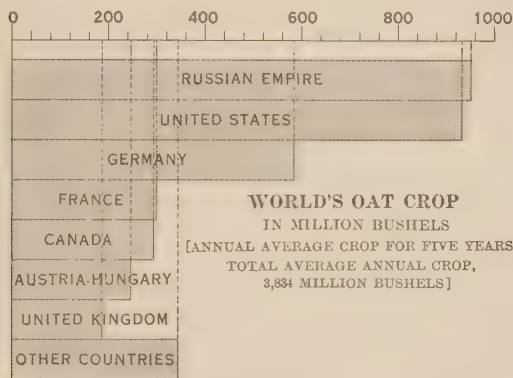


FIG. 4.

tains, and within the Arctic region. The malt remaining after straining off the beer is fed to cattle. A small part of our barley is exported to the beer-making countries of Europe. *Rice* grows best in the warm belt. The United States raises about 300,000 tons of rice annually, and imports about one-fourth as much from Asia.

Written Work.—1. Find, from Table VII, where oats, rice, barley and rye are grown in this country, and print the names of these grains on an outline map. 2. Write a paragraph on the world's production of oats or barley from Figures 4, and 34.

10. Textile Fibers are those that are used for making cloth. Cotton, wool, silk, and flax supply clothing for nearly all mankind. *Cotton*, because it is easily grown and manufactured, is cheap, and hence it is more used than the other three fibers combined. Describe the climate in which cotton is grown; the picking and the manufacture of cotton, (XXX, 7).

The greater part of our cotton is "Upland" cotton with a fiber about one and a half inches long. Describe "Sea Island" cotton (index). Egyptian and Peruvian cotton are long staple. What is the Indian cotton (index)? About one-third of our crop is spun and woven at home. The rest goes to the manufacturing countries of Europe. Describe our trade in cotton (Tables III and IV). What machines are used in cotton manufacture? Why do we import cotton? For delicate fabrics, such as laces and fine muslins, the long-fiber cotton is necessary, as it makes a fine, strong thread. Also, where great strength is required, as in the canvas webbing for bicycle tires, a long and coarse fiber, such as the Peruvian cotton supplies, is best. This explains why we import cotton although our own crop is so large.



FIG. 5.

Written Work.—1. Mark on an outline map of the United States the cotton-growing States. 2. From Fig. 8 and from the text book make a list of the cotton-growing regions and color these regions on a map of the world.

(Other fibers will be studied in connection with the countries that lead in their production.)

11. Forests and Lumber Products.—The forest regions from which most of the lumber of commerce is cut form a great belt in the northern half of the North Temperate Zone. Find these regions and trace on the physical maps the northern limit of trees. The trees of the northern belt are mainly "soft" woods, such as white pine, fir, spruce, and cedar. They are easily worked and much used in building. Further south are hardwood trees, such as the oak, birch, walnut, maple and ash. Where do we find the cypress, cottonwood, palmetto, and hard pine (U. S. physical map)? In tropical countries are found hard "cabinet" woods. They are the most valuable, and are used for furniture and ornamental purposes. What varieties occur in Mexico? Central America? Brazil? West Indies (physical maps)? What peculiar woods are found in Ceylon? Madagascar? India? New Zealand? Australia? Japan (physical maps)?

Many of the greatest forests of the world, such as those of equatorial Africa and Siberia are yet little explored. The forests of the United States have been wastefully used, and do not supply the home demand. From what country do we get lumber (Table IV)? Wood is sold in the form of timber (logs), lumber, and lumber products, such as doors, sashes, and other forms used in building, furniture, barrel-staves and heads, woodenware, and vehicles.

Ohio and Illinois lead in the making of agricultural implements because they are in the hard-wood region, and in the

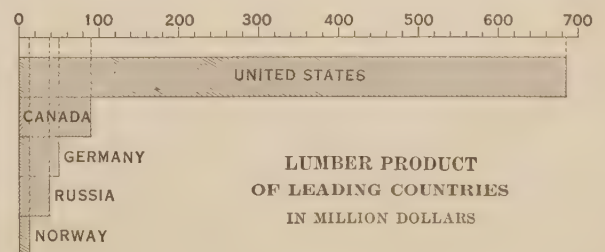


FIG. 6.

great farming region. What cities are noted for this work (Table II)? Lumber, building supplies, barrels and wood-pulp are made near the saw-mills on the edge of the forests. Furniture factories have grown up in New York, Philadelphia and Chicago because these cities are good markets; those of Grand Rapids are due to nearness to hard-woods.

Written Work.—1. Consult physical map of the United States, and shade on an outline map of the United States the forest regions. 2. From Fig. 9 write a paragraph on lumber production of the world.

12. Other Forest Products.—Besides lumber and its manufactures there is a vast number of useful articles derived from the forests. The tanning of leather depends upon forest products (index, *bark, gambier, valonia*). About a million tons of newspaper are made in this country annually from wood-pulp. The rubber from the world's tropical forests is worth hundreds of millions of dollars yearly. Drugs, dyewoods, gums, resins, barks, and oils are made from forest products. Cork, quinine, gum-arabic, gutta-percha, amber, camphor, potash, myrrh, and lacquer



FIG. 7.

come from trees. Where is each of these obtained (see index)? Give their uses. How are naval stores obtained (XXXI)? What peculiar forest product comes from Louisiana (XXXIV, 3)? (Consult index under *logwood, indigo, madder* and other articles named above.) Copal, and kauri gum are used in making varnishes. Shellac is an important gum brought from India; it dries quickly, forming a waterproof coating, and is used to make sealing wax and as a varnish. Gutta-percha is indispensable for coating electric cables to be used under water. Rosin is used in making varnishes and soaps. What are the uses of tar, pitch and turpentine (XXXI)?

Written Work.—1. Make a list of articles made of rubber. 2. From the physical maps of the continents make list of twenty-five forest-products, giving sources and uses.

13. Tobacco grows in both cool and hot climates all over the world. The United States raises over one-third of the world's supply. Where was tobacco first used? Who can tell something of the early history of the tobacco industry in this country? The flavor and value of tobacco depends upon the soil and climate in which it grows. The Cuban variety is a favorite for cigars; Turkish and Egyptian for cigarettes; the "Perique" of Louisiana for smoking; the fine, large leaf of Connecticut is used for cigar wrappers. Over two-thirds of our crop is exported

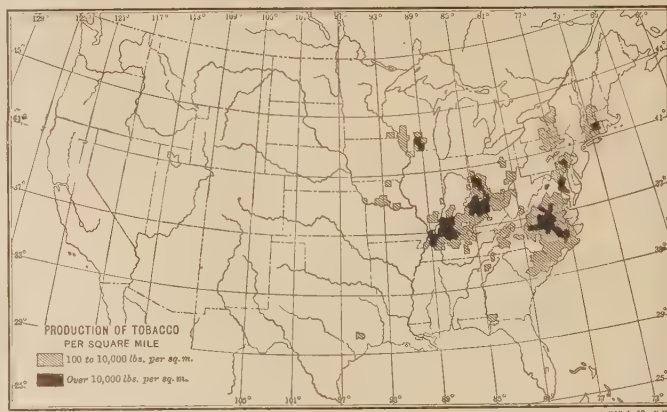


FIG. 8.

in the form of smoking and chewing tobacco to all parts of the world. But we buy, chiefly from Cuba and Sumatra, about half as much as we sell. The Cuban crop is less than one-tenth of ours in *pounds*, but equal to two-thirds of it in *value*.

Written Work.—1. On an outline map of the United States indicate, by shading, the tobacco-growing States. 2. Locate on the same map the leading tobacco-manufacturing cities.

14. Fruits and Vegetables are important articles in both our foreign and domestic trade. The Pacific slope has become one of the great fruit regions of the world. What are the leading varieties (XLIII, 4)? What fruits does Florida produce (XXXIII)? Where are apples and peaches grown (index)? Early fruits and vegetables are raised in vast quantities along the Atlantic and Gulf Coasts to supply the large cities. Fast freight lines with refrigerator cars distribute the fruits and vegetables of California and the South to all parts of the country, supplying the large cities through the entire year.

Many small fruits and vegetables are grown under glass during the winter, thus maintaining a continuous supply for the city markets. Where are wine and raisins produced (index)? Apples are the only fresh fruit exported by us to any extent. Other fruits are preserved by drying and canning, and in this form are sent abroad. What is the value of our fruit export (Table III)? To what countries is it sent? What fruits do we import? From what countries (Table IV)? Potatoes and onions are the only vegetables imported in large quantities. Where do we obtain them (XLVIII)?

Written Work.—1. Make a list of fresh fruits and vegetables seen at a grocery store. 2. Make a list of the *preserved* fruits that you might buy at the grocer's. 3. On an outline map of the United States indicate by colors the several fruit-growing regions.

15. Stock-Raising.—The raising of the domestic animals—the horse, cow, sheep, etc.—is an important industry in many countries. A mild, dry climate favors especially the raising of cattle and sheep as it enables these animals to feed out of doors through the winter and save the expense of providing food and shelter.

The Western Plains of the United States have all these advantages and support many millions of cattle and sheep. The natural "buffalo" and "bunch" grasses are nutritious food even when dried by the hot summer or buried under the snow. The cattle raised in these grazing-regions and fattened in the corn belt are the best in the world. Many of them are shipped alive to Great Britain and the West Indies, but the larger number are sent to the great meat-packing centers. Sheep are mainly raised for their wool, but several millions are annually killed for mutton.

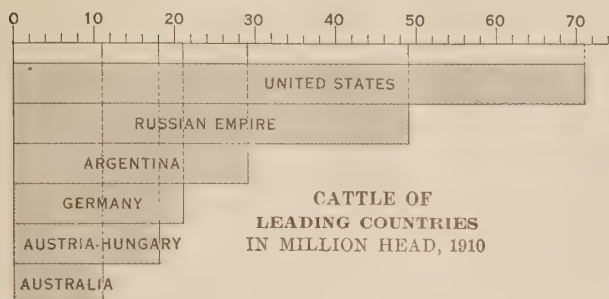


FIG. 9.

Horses, mules, and milch cows are raised mainly in the rich agricultural states as they need to be kept in barns and fed during cold and wet weather. Hogs feed naturally on grass, nuts, and acorns, but they must be fattened on corn to make the best pork. Much attention is given on stock farms to breeding cattle for beef or milk. In the same way horses are bred for speed or strength, sheep for mutton or wool, and hogs for pork. The finest mutton is produced in England, where stock-raising is most skillfully carried on.

From Table VII find whether the states that lead in corn lead also in hogs. What states lead in horses? How do these states rank in other farm products? What states lead in cattle and sheep? What is the climate of these states? Their rank in other farm products? From Fig. 9 find the great cattle-raising countries. How do they compare with the Western Plains in climate?

Written Work.—1. On outline map of the United States show by shading the states leading in cattle. **2.** Show those leading in sheep, horses, or hogs.

16. "Provisions" is the commercial name given to mutton, beef, and pork products, butter, cheese, and milk. How do they rank in value with our other productions (Table I)?

The United States exports twice as much meat as all the rest of the world combined. Since the invention of refrigerator cars, dressed beef has become an important article of trade. It is sent from the slaughter houses of Chicago, Kansas City, and St. Louis to all parts of this country and of Europe. The best Argentine beef, also, is sent frozen to Europe, but the poorer quality is prepared for sale to tropical countries by drying and smoking. We eat most of our mutton, but beef, hams, bacon, pork, and lard are exported yearly from this country to the value of a hundred million dollars. Name some meat-packing centers (Table II). In these centers the slaughter houses are near the stock-yards where the animals are unloaded from the trains. Each set of men does only one part of the work. The hog passes rapidly along a carrier, and is bled, scalded, scraped, cleaned, cooled, and placed in cars, or it is cut into hams, pork, and bacon, each going to a separate room to be cured, packed and shipped. In some cases this work goes

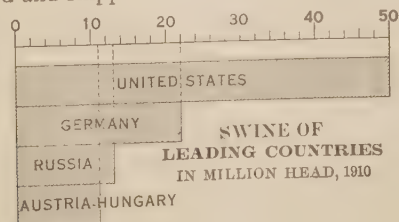


FIG. 10.

on at the rate of a "hog a minute." Cattle and sheep are handled with equal swiftness.

The refuse is made into fertilizers; hides are sent to tanneries to be made into hair and leather; hoofs furnish gelatine and oil; bones, horns, and tails are used. Not a particle goes to waste.

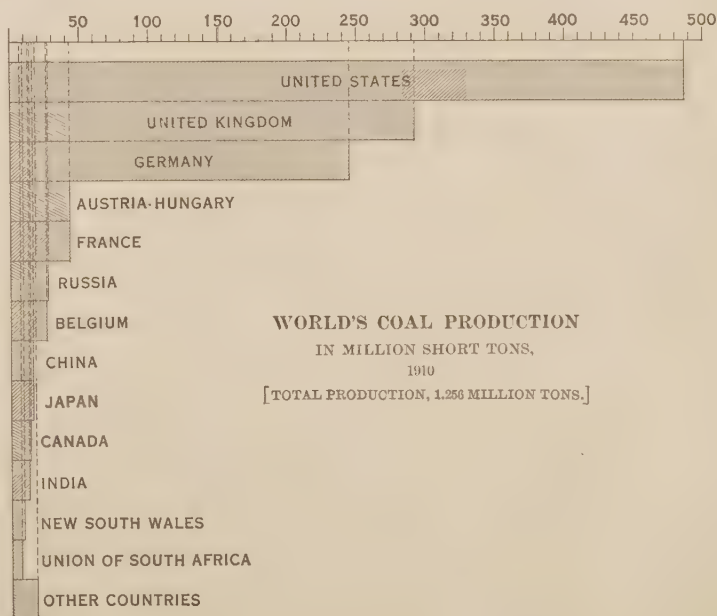
Cheese and milk factories and creameries are usually small and are scattered over the country near railroad stations, where milk can be quickly obtained, and the products cheaply shipped. An oil called "oleo" is made from the fat of cattle, and is largely exported to Holland, Belgium, and Denmark, where it is made into oleomargarine, a substitute for butter.

Written Work.—1. Indicate by color on an outline map of the United States the chief stock-raising states. **2.** Place on the above map the leading shipping points and meat-packing centers (consult index under *cattle, sheep, beef, pork*, etc.).

17. Our Mineral Wealth exceeds that of any other country. What is our rank in coal, iron, copper, gold, and silver (Figs. 11-17)? In what section is each of these found (physical map)? These minerals have added greatly to our wealth. Coal furnishes fuel, and iron machinery for our factories; copper, mercury, tin, and lead are used in the arts. Gold and silver give us millions of dollars every year for use as money. Tin and lead are largely imported. Sulphur, nitrates, and many other chemicals also are imported (index). But a long list of minerals, such as clay, limestone, cements, fertilizers, such as gypsum, phosphate, stone for grinding and polishing, and building stones—from the choicest marbles to the hardest granites, are found in abundance. What states produce lead? Sulphur? Phosphates? Whence do we obtain tin? Lead? Sulphur? Nitrates (index)? What kinds of building stone can you name? Where is each found (index)? What other useful minerals can you name?

Written Work.—1. On outline map of United States write in each state its leading minerals. **2.** From Figs. 11-17 write a paragraph comparing the United States with other countries as to mineral wealth.

18. Iron and Coal.—The presence of iron may be observed in many places by the reddish color which it gives to rocks and soil. This red substance is oxide of iron, or "iron rust." When rock contains 60% of iron it is called "ore" and can be profitably mined.



WORLD'S COAL PRODUCTION
IN MILLION SHORT TONS,
1910
[TOTAL PRODUCTION, 1,256 MILLION TONS.]

FIG. 11.

The three leading kinds of iron ore are the yellow (limonite), the red (hematite), and the black (magnetite). The two leading kinds of coal are hard, or anthracite, and soft, or bituminous. Anthracite burns with little smoke, and is therefore valuable for heating in cities and on railroads. The supply of anthracite is comparatively small. It is found chiefly in Pennsylvania, though there is a little in Colorado and New Mexico. Bituminous coal burns with a flame, giving off much smoke and gas. It is used in engines, in gas making, and to make coke. Coke is made by heating bituminous coal in ovens till the gases and coal tar are largely driven off. The gases are used for lighting, and the solid residue is coke. This coke is used for smelting. The largest coke ovens in the world are in the Connellsville district south of Pittsburgh.

The separation of a metal from the ore by means of heat is called "smelting." The richest iron ores in this country are found along the shores of Lake Superior, and the best smelting coal is in western Pennsylvania. This coal and iron can be most cheaply brought together along the southern shore of Lake Erie. The Lake Superior ore is mined in open pits and shoveled into self-dumping cars by steam. These cars discharge the ore through chutes into the ore-ships which distribute it to the iron manufacturing towns along the lakes. The coke and limestone are brought here by rail. This convenient location of raw materials has made the region bordering the southern shore of Lake Erie the greatest iron and steel manufacturing section in the world. The Birmingham district in Alabama also has all the advantages for cheap iron making and ranks next in output to the Lake Erie region.

Written Work.—From Table VII make a list of the leading states producing coal, and the number of tons produced by each.

19. Petroleum and Natural Gas are generally found near the coal fields. They come from trees and plants that have been buried in the earth for ages. The gas is consumed in the neighborhood of the wells, but petroleum in its refined form as kerosene is used in every part of our country and is one of our five great exports. Besides kerosene, over two hundred other products are obtained from petroleum. Gasolene, naphtha, vaseline, aniline dyes, drugs, and soap are some of these.

The crude oil is pumped from the wells through pipe-lines to the sea-board. Here are great refineries which separate from the oil naphtha, gasolene, and

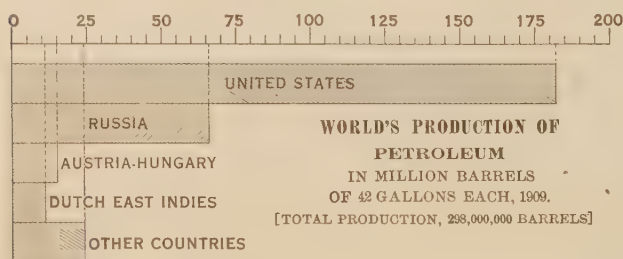


FIG. 12.

kerosene. What is left is made into vaseline, paraffin, anilines, and other "by-products." Refined oil, or kerosene, is run into tank-cars and steamers and sent to all parts of the world. What do you know about oil-wells (XXVIII, 6)? Natural gas is obtained by boring into the earth until the gas is found. It is then led through pipes to the cities, where it is used for both fuel and lighting. Natural gas forms the best fuel for glass-furnaces, and therefore the most of our glass is now made in the gas regions.

Written Work.—1. Locate on an outline map the petroleum fields of our country. 2. Write from Fig. 12 a paragraph on the distribution of petroleum in the world.

20. Copper is, next to iron, the most useful metal. *Brass* is made by melting together copper and zinc. Such a mixture of

metals is called an "alloy." Brass ranks next to iron and steel in usefulness. *Bronze* is an alloy of copper and tin. The chief use of copper to-day is as a conductor of electricity. Large

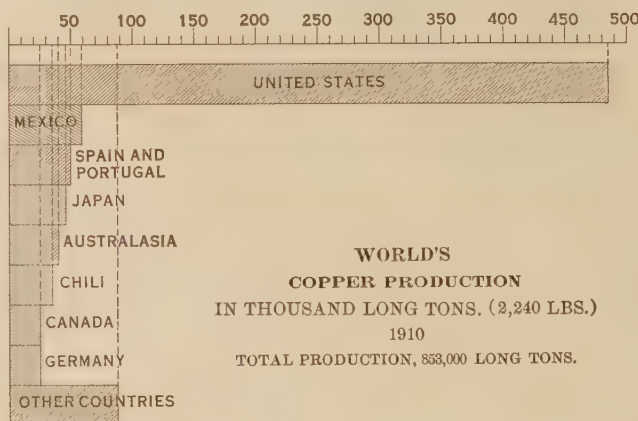


FIG. 13.

copper wires carry the current many miles to be used in running cars and machinery of every sort. Where is the world's supply of copper obtained (Fig. 13)? What part of the world's copper does the U. S. supply? From what states is copper obtained (Table VII)? The Lake Superior region, Arizona, and Montana yield six-sevenths of our copper. The veins in one Montana mine, which run through solid granite, are ten feet thick. In Michigan, pure copper is found in masses weighing from two hundred to six hundred tons. These must be broken up with hammer and chisel before they can be raised to the surface. The United States, owing to superior methods of smelting and refining copper, finds it profitable to import ores from Canada, Mexico and Japan, and to export the refined metal in bars. About half our refined copper is exported to Europe, chiefly through New York and Baltimore, because large refineries are near those cities.

For what is brass used? Can you mention anything made of bronze? Waterbury and Bridgeport, Conn., lead in the manufacture of brassware. Name some forms of electrical apparatus using copper wire. Name other uses of copper.

Written Work.—Write on outline map the copper-mining, smelting, and manufacturing centers of the United States.

21. Gold and Silver are called the "precious metals," although they are not as expensive as some metals which are rarer. They are of great importance to the world because of their use as money. Money is of great importance in carrying on the business of a country as it is used to measure the value of all goods that are bought and sold. Just as we want our pound weight and our gallon measure to be always the same, so we want our measure of value to be always the same. The standard of value in the United States is the gold dollar. It contains about 25 grains of gold 90% pure. Gold is the standard of value in most of the great commercial countries. The yield of gold is very regular. If it were sometimes found in vast quantities, and again in very small amounts, it would be more expensive at one time than another. This would make it poor material for money. Both gold and silver have been used as money from the earliest times. Gold is not found

combined with other substances in an ore. It is found as a pure metal in the sandy beds of brooks and rivers, in banks of sand and gravel, and in quartz rock obtained from mines. It is obtained from sand and gravel by washing out in a pan. This is called "placer-mining." Hard banks of gravel are broken down by powerful streams of water. This is called "hydraulic mining" (XLI). The quartz rock is ground-up in powerful mills. Gold

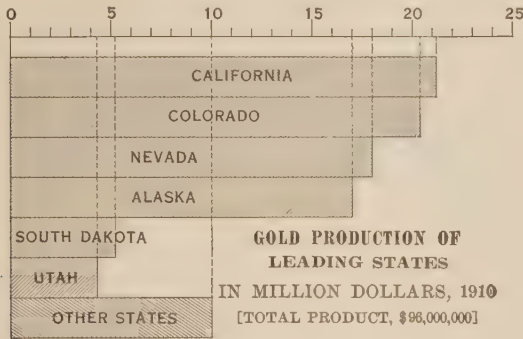


FIG. 14.

is extracted from gravel and ground-up rock by washing or by dissolving in mercury or cyanide of potassium.

The rock and gravel is washed down through long chutes with cross-pieces or "riffles," at the bottom holding mercury. The heavy grains of gold drop into the mercury and are dissolved. The mercury is separated from the gold by heat which drives it off in the form of vapor, leaving the gold behind.

Silver is found as an ore mixed with lead, copper, and sulphur. The ore is roasted, to drive off the sulphur, and then ground to powder and mixed with quicksilver.

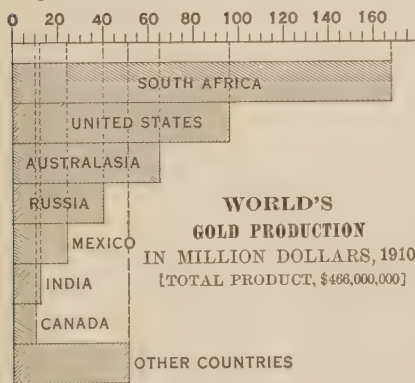


FIG. 15.

in the United States (index and Table VII). 2. Write a paragraph upon the world's distribution of gold and silver, using Figures 14 and 15.

22. Other Minerals.—*Aluminium* is obtained from clay and is the most abundant metal. It is light, strong, and a good carrier of electricity, but is expensive to manufacture. It is used for many purposes, but principally where combined strength and lightness are required. *Manganese* and *nickel* are often used to make very hard steel. For what else is nickel used? Where is *zinc* obtained (index)? Did you ever see any? Zinc and lead are both used in manufacturing paint. Give other uses of lead? What States produce it (index)? *Salt* is a most important mineral. What is its chief use? It is also used to preserve meat and fish, and in making soda and glass. Where is salt produced (index)? *Clay* is used in making bricks, tiles, drain pipe, stoneware and

terra cotta. It has many other uses. What states lead in the pottery industry (index)? What kinds of building stone can you name? Where is each obtained (index)? *Cement* when mixed with water hardens to stone, which dampness cannot penetrate. The largest Portland cement works are in eastern Pennsylvania and western New Jersey.

Portland cement is made by grinding a natural rock with lime. It is used for making sidewalks, artificial stone, and for the foundations of buildings. The name comes from the resemblance in color to the stone from the Isle of Portland, England.

Graphite is a form of carbon. Where found and for what used? Phosphate, gypsum, and nitrate of soda are used as fertilizers. Describe mercury and tell some of its uses. Nearly all the world's mercury comes from Almaden, Spain, and from New Almaden, California. What is slate and where found? Name its uses. Platinum is a metal more valuable than gold. It is used in making vessels for handling certain acids which would corrode other metals and for delicate electric connections.

Written Work.—1. On an outline map of the United States locate each of the minerals named above. 2. Choose some metal and write an account of where it is found, things made of it, and their uses.

23. Manufactures in the United States.—Our manufactures exceed in value those of any other country. Name some of the materials which come from our fields, pastures, and mines, which we manufacture, or change into other forms, by the use of machinery. These are called "raw materials." In their altered forms they are called "manufactured products." Where is manufacturing chiefly carried on (XXIV)? What makes New

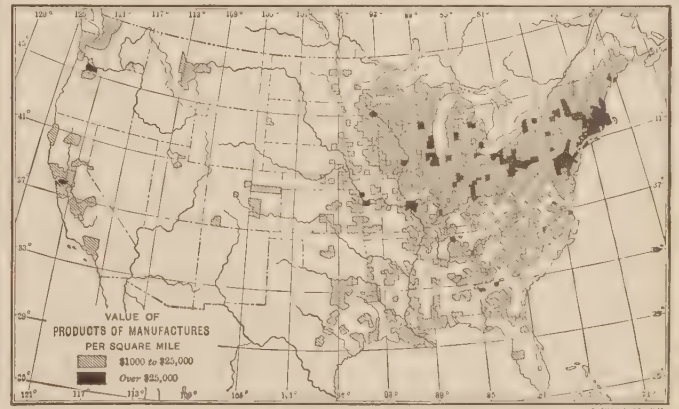


FIG. 16.

England a manufacturing region (XXV)? What helps to make the Middle Atlantic States a manufacturing region (XXVIII)? What advantages have the Central States for commerce (XXXVI)? Why has agriculture heretofore predominated in the Southern States? Why is manufacturing now increasing there (XXX, 7)? What occupations exceed manufacturing in the Rocky Mountain and Pacific States? What natural conditions cause this (XLII)?

Why are iron and steel made in western Pennsylvania (18*)? On the same principle explain the making of furniture in Michigan, turpentine in Georgia, malt liquors in Wisconsin, meat products in Illinois, steel in Alabama, and cotton goods in South Carolina. Find some other manufacturing industries established near the source of raw material. On the other hand, the location of a factory may be due to convenience of power. Explain the early establishment in New England of factories using Southern cotton; name cities of New England built near sources of water-power (XXV)? An industry

* Figures in heavy type refer to paragraphs in these lessons.

once established in a place may remain after the cause of its establishment has ceased to exist. There are factories in New England run by coal brought from Pennsylvania that were established because of water-power now no longer used. Agricultural implements are made in Illinois, Ohio and Indiana, chiefly because the market is near. Sugar and petroleum are refined in New York because they can be most easily brought there. Many industries will be established as well in one place as another. Thus Paterson in New Jersey leads in silk and in locomotives, Ansonia in clocks, and Brockton in shoes, because the energy and skill of certain men have built up these industries. The building of a railroad may develop industries along its route. Many a little station starts its creamery or canning factory because transportation is swift and cheap, and milk and fruit easy to obtain.

Written Work.—1. Write a paragraph on uses of steel. 2. Make a list of all the circumstances affecting the location of manufacturing towns.

The needs of a manufacturing nation are: *a*, raw materials; *b*, waterpower or fuel; *c*, good facilities for transportation; and *d*, a market for the goods made. Over 96 per cent. of our manufactured goods are used at home. This shows the rapid development of our country and the high state of civilization and intelligence of our people. American education, intelligence, and inventive genius have caused American machinery and labor-saving devices to be the best in the world. For these reasons, we are able to produce a greater variety of manufactured goods, and at a less cost, than most countries. The following will give an idea of the immense value of our manufactures.

TABLE I.

OUR TWENTY CHIEF MANUFACTURING INDUSTRIES AND APPROXIMATE VALUE IN 1903-4.

Iron and Steel Goods.....	\$975,000,000
Machinery and Engines.....	950,000,000
Preserved Meats (beef and pork).....	790,000,000
Lumber and Manufacturers of.....	735,000,000
Textiles (cotton, woolen, linens and silks).....	690,000,000
Clothing.....	623,000,000
Flour and Meal.....	560,000,000
Paper (including wood pulp), Stationery, Books and Newspapers....	522,000,000
Leather and Leather Goods.....	520,000,000
Cars and Vehicles.....	340,000,000
Distilled and Malt Liquors.....	334,000,000
Building Materials (brick, stone, lime, cement).....	320,000,000
Manufactures of Tobacco.....	293,000,000
Copper, Brass, and Bronze.....	254,000,000
Refined Sugar and Molasses.....	241,000,000
Lead Products.....	183,000,000
Bread and Bakery Products.....	175,000,000
Furniture and Upholstering.....	133,000,000
Butter, Cheese, and Condensed Milk.....	131,000,000
Refined Petroleum.....	124,000,000
Other Manufactures.....	4,090,000,000
Total.....	\$13,000,000,000
Cost of Raw Materials.....	7,000,000,000
Net Value of Our Manufacturing Industries.....	6,000,000,000

What are our two chief industries? What is the value of both? What does this show about our industrial rank. Why is the third so great? Account for the fourth. The sixth. The seventh. Give reasons for the eighth. How are the third and ninth related? What is the total value of all our manufactures? How much value has been added by labor to the raw materials?

Written Work.—1. Write on the chief manufacturing nations of the world, using Fig. 19, giving rank of the United States, and compare the value of our manufactures with that of other leading countries. 2. Make a list of some great inventions that have aided our manufactures.

24. Iron and Steel.—The extent to which iron and steel are used measures the rank of a country in manufactures, commerce,

and civilization. Compare Figures 17 and 19 and show how they agree with this statement. The latter half of the 19th century is sometimes called the "age of steel," because during that time steel began to take the place of wood and iron wherever strength and durability were required, just as we call the beginning of the 20th century the "age of electricity."

What is the rank of the iron and steel industries of this country? With machinery and foundry products, the value of this branch is nearly one-sixth of the total value of all our manufactures (Table I). About one-twentieth

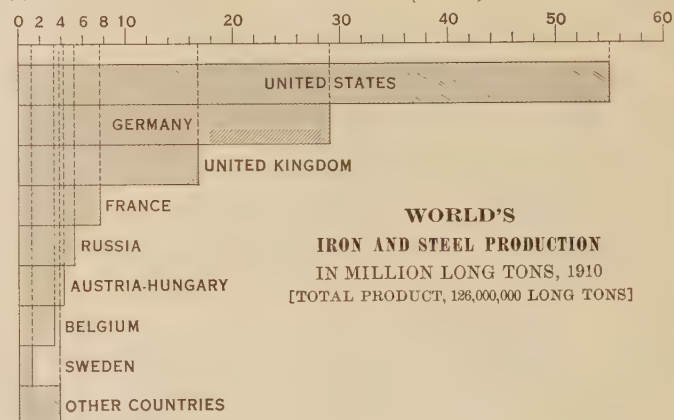


FIG. 17.

of this finds its way to foreign countries. One-half of these exports consists of electrical and sewing machines, pumping and mining machinery, engines, boilers, and printing presses. Other iron and steel exports are locks, hinges and other builders' hardware, tools, wire, and fire-arms. Steel ships, armor plate and cannon are of great importance (index). Nineteen-twentieths of our iron and steel goods are used at home. This shows that our industries are developing rapidly and that our domestic trade is vastly larger than our foreign trade. Besides the goods mentioned as exports, we use much steel in rails for our railroads and in frames for the thousands of steel buildings erected every year in our cities. Make a list of other uses of steel.

The difference in hardness between iron and steel is due to the amount of carbon contained. Carbon was formerly removed from iron by very laborious methods, but this is now done quickly and easily by the Bessemer process. Melted iron and ores containing metals which will harden the iron, are put into a vessel with small holes in the bottom through which a blast of air is blown. This blast of air burns out the carbon in the melted iron, and thus changes it into steel.

The vessel, or "crucible," is then tilted by means of pivots let into the sides, on which it is suspended, and the melted steel is run into moulds of any desired pattern. Much of it goes in the form of bars and plates to the rolling-mills where heavy machinery rolls it into rails, armor plates, sheets, and various other forms for immediate use, or for further manufacture.

25. Textile Goods.—The word "textile" includes all fibers that can be made into cloth. Name the chief animal fibers; vegetable fibers. Asbestos is sometimes called "mineral wool" because it can be made into cloth. Cloth-making is a leading occupation in all parts of the world. Name some kinds of covering for the body used by different races. In what climate is fur used? Wool? Silk? Cotton? Grass and straw are often used by the people of China and Japan.

Cloth-making by machinery began in England about the time of the American Revolution and was soon afterwards introduced into America by Samuel Slater. Account for its growth in New England; in the South. Where are the chief centers of cotton manufacture (index)? Describe four

steps in cloth-making. Name some varieties of cotton goods. What are "prints?" "Ginghams?" Laces, embroideries, and other trimmings are the most expensive form of cotton goods. Where are our silk and wool obtained (Table IV). Where do we get our linen goods? What cities lead in the manufacture of silks and woollens (Table II)? Cotton, linen, wool, and silk are mixed together in the making of some cloths, cotton being used with the more expensive fibers to lessen the cost of the product. What

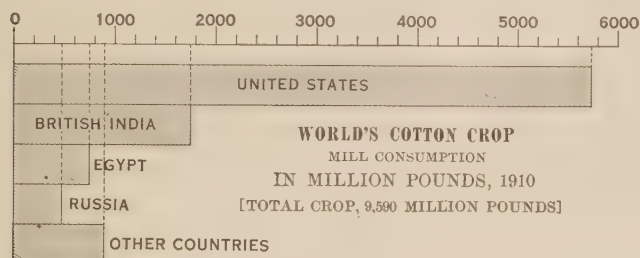


FIG. 18.

ports ship most of our cotton? What reason can you suggest for this? Find out from Table III the value of our cotton export. For what are the seeds of the cotton-plant used (XXX, 7)?

Written Work.—1. Turn to Tables III and IV and compare our exports of raw materials and cloth with the imports. 2. On outline map of the United States indicate by color the States producing cotton and wool.

26. Clothing for men, women, and children is one of our largest factory products. What is its value (Table I)? Over two-thirds of all the clothing worn in this country is factory made. Standard patterns of all sizes are made, and the cloth is cut and sewed by machinery. The large cities are the centers of this work. The clothing is sometimes made in factories, but much of it is done by men, women, and children in their homes. They are paid by the "piece," and often receive very low wages. New York stands first in this business. What six cities rank next (Table II)? These large cities are wholesale centers to which merchants from smaller towns come to buy clothing. This explains why clothing is manufactured in large cities. In your city, which is cheaper, "ready-made," or "tailor-made" garments? Why? The cheaper grades of cloth from our home factories are mainly used for "ready-made" clothing, while the more expensive goods brought from France and Great Britain, on which there is a high rate of duty, are used in work made to order.

Not only suits, overcoats, and cloaks are now made in factories, but underwear, collars, cuffs, neckties, hosiery, and every kind of knit goods are thus made. Can you tell why the factory process makes goods cheaper? How does the quality compare with that of home-made and tailor-made garments?

Written Work.—A truck being loaded with rolls of cloth is seen in front of a wholesale store; farther on a woman is seen carrying upon her head a great bundle of partly made garments. Write what is suggested to you by this.

27. Flour, meal, and bakery products.—What are the cereals (7)? Where are they grown (7-9)? What is the value of wheat for bread (7)? Why is not flour among the manufactures of New England (XXVII, 8)? In what part of the country do you think most of our flour is made? Many country places have mills where wheat, corn, and oats are ground between big stones which are made to revolve by water-power, but most of our flour is made in enormous mills near the wheat regions, where the grain is crushed by a series of immense steel rollers. What city leads in the manufacture of flour (Table II)?

Other milling towns are located along the great lakes and canals. Why is this? What do we receive for the breadstuffs sent abroad? What countries purchase breadstuffs of us? Which of our ports ship flour abroad (Table III)?

In most American cities, and even in small villages, the people depend largely upon local bakeries to supply them with bread, pies, and cakes. "Crackers" or "biscuits" of many varieties form a considerable article of domestic commerce. In the largest bakeries the baking is done in enormous rotary ovens revolving slowly in heated chambers. Every revolution of the oven turns out hundreds of loaves or pies. The annual product of these bakeries is nearly two hundred million dollars. In the country, baking is almost entirely done in the home.

Written Work.—1. On your outline map of the United States showing the wheat regions, locate the chief cities engaged in making flour (index under "flour"). 2. Children who live near a bakery write on "What I Saw in a Bakery."

28. Leather.—From what is leather made? The skins of the larger full-grown animals are called "hides." What part of our country supplies hides? From what foreign countries do we obtain them (Table IV)? The process of making leather from skins is called "tanning." This requires large quantities of oak and hemlock bark. These barks contain a substance called "tannin," which hardens the hide, and prevents it from putrefying. Most of the bark used is from our own forests, but there are also imported forest products used in leather-making. When the New England forests decreased, the tanneries of the country moved southward. Recently a process of tanning, called the "chrome" process, has been invented which dispenses with the use of bark and vegetable materials. The finer and softer kinds of leather are made by this process. "Morocco" and "Russian" leathers are fine varieties used in book-binding. The French make the finest leather for gloves and shoes. They also excel in making "patent" leather, which is ordinary leather coated with a glossy, waterproof lacquer.

The fur, wool, and hair obtained from the skins have important uses. The hair is mixed with mortar to give it toughness; the fur is used in making hats, and the wool for clothing. Some skins valuable chiefly for their fur are called "fur skins." They are tanned here and then sent to London and Leipzig to be dyed and prepared for making into "furs" for winter use. Our imports of hides and skins and our export of leather have doubled within a few years.

Written Work.—1. Make a list of articles made of leather. 2. From Tables III and IV write a paragraph on our trade in hides and leather. 3. On map of the world color the countries producing leather (see index under leather).

29. Other Manufacturing Industries besides those we have studied are of great importance. More money is spent for wine, beer, and distilled liquors each year in the United States than for the grain and meat used for food. What places are noted for each of these articles (index)? How many things can you name that are made of clay? Bricks are made in all parts of the country, but New Jersey and Ohio are the leading states in the pottery industries. Trenton and Perth Amboy have terra-cotta works. East Liverpool and Cincinnati, Ohio, also make fine ware. "Chemicals" is the name given to a large class of products. Among them are borax, alum, potash, fertilizers, soda, paints, dyes, medicines, oils, extracts, alcohol, and hundreds of similar articles of less importance. Find the value of our trade in chemicals (Tables III and IV). What things are made of paper? How do paper goods rank among our manufactures (Table I)? Of what raw material is newspaper made (index)?

What cities make jewelry? What of our trade in jewelry and precious stones? Glass-making is also a leading industry in several states (19). What articles, made of glass, are most largely used? The finest glass, rolled into plates, is called "plate glass."

All the above are large industries worth many millions of dollars annually. When we think that nearly everything we use is a factory product, we realize the immense extent of our manufactures. Every button, pin, needle, pen,

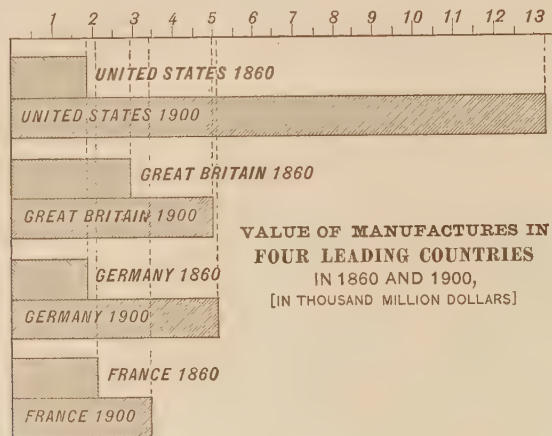


FIG. 19.

pencil, knife, and the many little conveniences of every-day use was made in a shop with millions of others of the same sort. Every industry gives employment to many hands, nearly 7,000,000 workmen being wage-earners in our factories.

Written Work.—1. If you have made a visit to some factory, describe what you saw. **2.** *Manufacturing* means strictly "making by hand," but now most manufacturing is done by machinery. Write an account of some "hand" manufacturing that you have seen.

30. The Government's Relation to Commerce.—In all countries commerce is carried on according to regulations made by the government.

Our government protects our ships, our merchants, and other citizens in all parts of the world. Our navy is divided into squadrons stationed in various parts of the world, so that a ship can be sent to any place in case of trouble. Do you remember a case in which our navy used force to protect our trade? We have an officer called a "consul" in each important city of the leading countries. It is his duty to watch over our interests and the interests of our citizens in those countries, and to secure information that may help our trade.

The government also dredges out harbors, grants land to railroad companies, helps build canals, improves river navigation, keeps lighthouses along the coast, marks channels with buoys, and pays steamship lines to carry the mail. When canals and railroads are within the boundaries of any State, the State controls them, but when they lead from one State to another they are under the control of Congress. The government furnishes information to merchants concerning crops, markets, and prices in all parts of the world. This information is published and sent free to those who ask for it. Daily weather reports also are issued, and storm signals displayed, so that sailors and farmers may be warned of coming storms.

Written Work.—Make a list of the various duties of the government toward commerce and show the advantage of each.

31. Our Domestic Trade is about twelve times as great as our foreign trade. Of the vast products of our fields and factories amounting to eighteen billions of dollars, nine-tenths is used by our own people. The "moving" of our crops and the distribution of our varied productions requires vast systems of transportation and gives employment to millions of men. What causes can you give for this domestic trade? Where do the people of the great manufacturing cities of the East obtain flour and meat? Where do they get cotton? Hides? Lumber? Wool? Naval stores? What part of the country supplies the West and South with manufactures? With timber? In general, which way do raw materials move? Food products? Manufactured goods? What trade is carried on between country and city? Between large cities and small towns and villages? Between the coast and the interior? What do the farmers of Kansas and Iowa buy in exchange for their wheat and corn? Where do these things come from?

If we think how many things are required to supply all our needs, and that most of them are made in comparatively few places, and often in a single city, we shall see how far goods must be carried to reach all the people who need them. We shall see also how many shops, stores, and markets are needed to sell these goods, and what a vast number of people may find employment as merchants, clerks, messengers, and carriers. All this helps us to understand the great volume and importance of our domestic trade.

Written Work.—1. Describe the trade and transportation necessary to provide us with a breakfast of oatmeal and milk, coffee, rolls and eggs. **2.** Write what you know of the business of a grocery store. **3.** Of a meat market.

31. Inland Transportation.—What are the uses of roads? Which roads are most used by the farmer? We have about 3,000,000 miles of wagon roads and 240,000 miles of railroads. Show the importance of each kind. Describe our great waterways (XXIV, 7). Name three rivers belonging to the Mississippi system, and the chief cities on their banks. Name ten rivers of the Atlantic Slope, and their chief cities; the rivers and cities of the Pacific Slope. Why do we usually find a city located at the mouth and one at the head of navigation of a river (XLIIB). How far is the Mississippi navigable (Map Studies, Phys. U. S.)? The rivers of the Atlantic Slope? The steam-

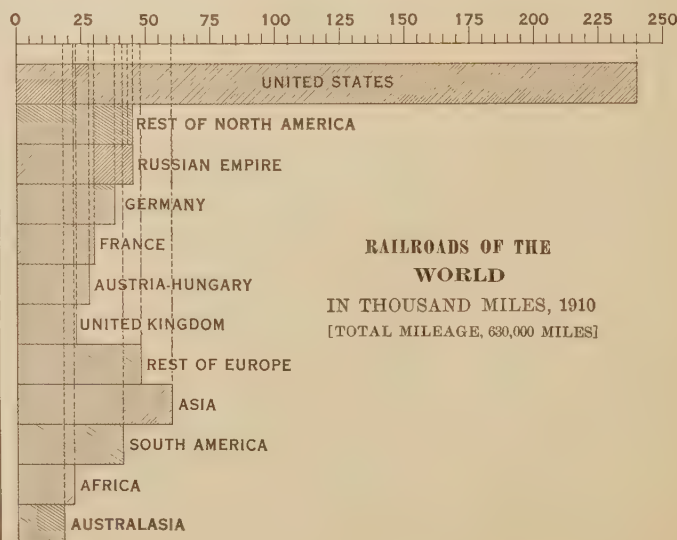


FIG. 20.

boats plying on the rivers bring farm and garden produce to the cities and carry away goods sold to the merchants of the smaller inland towns.

Locate and give the connections and commercial uses of the Erie Canal; the Sault Ste. Marie; the Welland Canal; the canal connecting the Hudson and Lake Champlain; Lake Erie and the Ohio; at the Falls of the Ohio (XXXVII, 2); connecting Lake Michigan and the Illinois; Lake Winnipeg and the Mississippi (XXXIX, 3); around the falls of the Schuylkill.

(Railroad lines, Map of Transportation and Travel.) What roads go from New York through Albany to Buffalo? These roads have parallel lines on both sides of the Hudson, and across the State. What road goes to Buffalo through northern Pennsylvania, and southern New York? Find the Delaware and Hudson; the New York, New Haven and Hartford; the Central Vermont; the Boston and Maine. This road connects with Troy, New York, and has a network of tracks from central Massachusetts northward. Find the Grand Trunk branch from Portland to Montreal. When the St. Lawrence is frozen, Canadian trade is carried over this road. New York is a great center for the transfer of freight and passengers. Goods brought from the northeast and northwest by rail, coasting vessel, or canal, are there transferred to vessels going to foreign countries, and to cities along our coast. Some goods are ferried to the Jersey shore for reshipment by rail, while freight and passenger trains are ferried around Manhattan to and from the Jersey coast. This convergence of many lines of transportation makes New York City probably the greatest distributing center of the world.

Follow the Erie road from New York to Chicago. Trace and name the roads from Chicago to Buffalo; to Quebec; to Cincinnati; to New Orleans; to St. Louis and Omaha; to El Paso, in Texas; to Denver; to Duluth. Trace and name the roads from Philadelphia to New York, Pittsburg, and Washington; from Baltimore to Cincinnati; Richmond to Cincinnati. Trace the routes of the Southern, the Atlantic Coast and the Seaboard Air Lines. What cities are connected by the Central of Georgia? Follow the Louisville and Nashville from New Orleans and Mobile to St. Louis; from Memphis to Cincinnati. By what great roads might you travel from New Orleans to San Francisco? From San Francisco to Chicago? From Portland, Ore., to Duluth?

Written Work.—1. Insert on outline map of the United States the chief railroad centers and termini of canals. **2.** Describe the trade carried in each direction on railroad lines between Chicago and New York.

32. Coasting Steamship Lines.—(Map of Travel and Transportation). A vast number of steam and sailing vessels, perhaps 40,000 in all, are engaged in carrying goods from port to port along our coasts and between home and foreign ports. Our coasting trade is by law entirely carried on by American vessels, but five-sixths of our foreign trade is carried by the ships of Great Britain, Germany, Holland, and other nations. New York is the chief receiving and distributing point for the cotton and lumber of the South, the grain, cattle, and wheat of the West, the manufactures of the North and East, and of our imports from foreign countries. What six ports rank next in order (Table V)?

From what you have learned of the productions and trade of the different sections of our country, name some goods which might be carried each way by the following lines of steamships on trips named:

Mallory: Galveston, Mobile, and Brunswick, Ga., to New York. *Merchants and Miners:* Savannah to Baltimore and Philadelphia; New York, Washington, and Baltimore to Boston. *Southern Pacific:* New Orleans to New York; New York to San Francisco and Portland, Me. *Clyde:* Charleston and Jacksonville to New York. *Fall River, Joy, and other Sound Lines:* New York to Boston, Providence, and New England points. *Pacific Coast*

Line: Tacoma to San Francisco, Los Angeles and San Diego. *Alaska Steamship Co.:* Seattle to Dawson and Juneau. *Old Dominion:* Norfolk and Baltimore to New York. *Eastern Steamship Co.:* Boston to Eastport and Portland. About 100 transportation lines on the great lakes, connecting Duluth, Superior, Chicago, Detroit, Buffalo, Cleveland, Milwaukee, and other ports.

Almost all passengers and much freight going from Atlantic to Pacific ports goes by rail across the Isthmus of Panama. But much heavy freight goes in large schooners around Cape Horn. All this time and expense will be saved when the Panama Canal shall be completed. What do you know of this canal (see Recent Geographical Events)? Besides our steamship coast trade, we have a large number of sailing vessels, which carry such heavy cargoes as coal, lumber, brick and stone, naval stores, and ice. Our fisheries also employ many boats.

Written Work.—1. On a map of the United States locate the leading seaports and draw and name the steamship lines connecting them.

33. Ocean Steamship Lines.—An important part of our foreign trade is with the West Indies, and the ports of the Gulf of Mexico and Caribbean Sea. This trade is about half carried by our own ships, which make several trips a month.

From Tables III and IV and Fig. 29, find out what goods might be carried each way by the following lines: *Ward:* New York to Havana. *Plant:* Boston to Halifax. *United Fruit Company:* Boston, New York, Philadelphia, Baltimore, Mobile, and New Orleans to most points in Central America, Columbia and the West Indies. *Munson:* New York, New Orleans, and Mobile to Havana. *Lamport & Holt:* New York to Rio, Buenos Aires and Pernambuco. *Red "D":* New York to Porto Rico and Porto Cabello. *Cuba Mail:* New York to Tampico, Vera Cruz, and Progreso. *Panama Railroad Line:* New York to Colon.

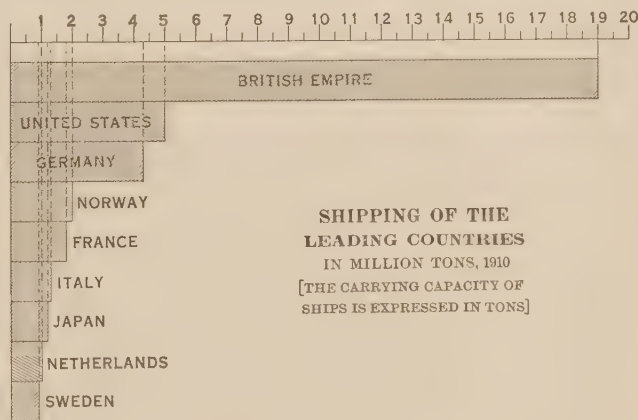


FIG. 29.

There is a much larger number of steamships engaged in the trans-oceanic trade; but owing to the greater length of voyage, only one-third as many trips can be made as by a "coaster." Many sailing vessels also make long voyages from American ports to Asia, Africa, and Australia. A large part of our trade is carried by "tramp steamers." They do not run regularly between the same ports, but carry cargoes to any part of the world.

On the trade chart of the World trace the course of the following steamship lines and tell, from Tables III and IV, what goods might be carried each way on any given voyage: *Cunard:* New York and Boston to Liverpool. *White Star:* Boston, New York, New Orleans, and Philadelphia to Liverpool and London. *North-German Lloyd:* New Orleans, Baltimore, New York, and Galveston to Plymouth, Cherbourg, Southampton, Bremen, and Naples. *Hamburg-American:* New York and Philadelphia to Hamburg. *Elder-*

Demster and Horsley Lines: Mobile to Liverpool and Havre. *Red Star*: New Orleans and New York to Antwerp. *Great Northern*: Tacoma and Seattle to Yokohama, Shanghai, and Manila. *Oriental*: San Francisco to Honolulu and Hongkong. *Strachan*: Brunswick, Ga., to London, Liverpool, Glasgow, Havre, Hamburg, and Bremen. *American and Australian*: New York to Melbourne. *American-Indian*: New York to Calcutta.

Written Work.—On Map of the World locate the ports named above, and draw the steamship lines between New York and these ports.

34. Our Foreign Trade is increasing rapidly as the result of large crops and cheap forms of transportation (XXIV and XLIIIb). The export of our manufactures has increased on account of their cheapness and excellence, which have caused a demand for them all over the world.

The sum of the exports and imports of a country is called its "total commerce." The difference between the exports and the imports is called the "balance of trade." When our exports are greater than our imports, the

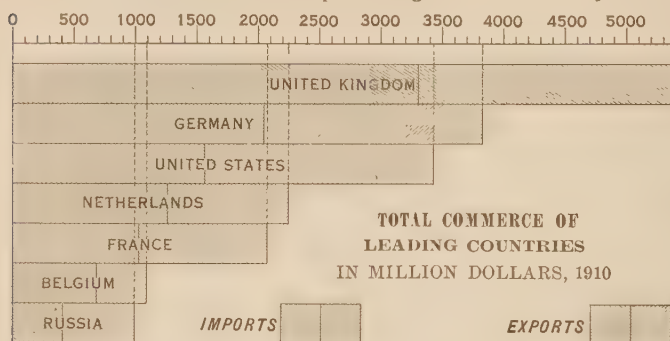


FIG. 22.

balance of trade is said to be "in our favor" because then we *get* more money than we *spend*; but if our imports are greater, it is "against us." From Tables III, IV, find our trade balance for 1904. Is it against us or in our favor? Trade balances must be paid in cash by the nation against which they stand. No nation can afford to *buy* more than it *sells* unless it has other sources of income. Out of our large trade balance we pay over \$100,000,000 annually to foreign ship owners for carrying our goods. We also pay many millions to foreigners who own stocks and other property in our country. If a nation should continue for many years to buy more than it sold, with no income from other sources, it would become bankrupt.

Besides cheap transportation there are two other things which may increase or reduce our foreign trade. These are the tariff laws and special trade agreements with foreign nations.

A tariff is a tax laid by the government upon imports. If this tax is high enough it may keep out imports altogether. The man who brings the goods in pays this duty, and adds it to the price of the goods when he sells them. At present our government lays a high tariff on things which we produce at home. This is to keep up the price of these goods and thus "protect" the home producer from being "undersold" by foreigners. Therefore this is called a "protective tariff." If the tariff is laid solely for the purpose of raising money for the use of the government, it is called a "tariff for revenue only." A country that levies no tax at all on imports is said to have "free trade." Many British ports, as Hongkong and Singapore, have entire free trade, while Great Britain and Holland are practically free trade countries, since a duty is laid on only a few articles for the sake of revenue.

Written Work.—From Fig. 22 write a paragraph on the commerce of the leading countries, giving, if possible, a reason for the balance of trade in each country.

35. Cities of New England.—Many things have caused villages, towns, and cities to grow up. Ferries, waterfalls, the crossing of lines of travel and trade, harbors, the mouths of rivers, sources of natural wealth, and places noted for healthful and beautiful surroundings, all offer opportunities for business and

trade. Can you name some towns that owe their growth to one or more of these conditions?

Many small towns owe their prosperity to a single industry, but large cities usually have many industries which depend upon one another. Thus, textile factories support machine and repair shops and dyeing and bleaching establishments; blast furnaces give rise to steel mills, foundries, and hardware factories; while everywhere the grocer, butcher, tailor, shoemaker, and various tradesmen, supplying the needs of everyday life, have numerous shops and stores.

What advantages have the New England States for manufacture and trade (XXV, 2, 4, 6)? The New England cities had an early start in manufacturing, and the capital and skill acquired have enabled their wares to undersell the rest of the world.

What is the chief port of entry for New England (Table V)? What are the chief manufacturing cities (XXV-VI and Table II)? What do you know of the manufactures and commerce of *Boston* (XXVI and Table II)? How does it rank as a port of entry (Table V)? Compare its exports and imports. Compare it with New York as to number of ships. Compare the value of its manufactures with those of New York (Table II). It makes more clothing, books, and refined sugar than any other New England city, and is the leading wool, boot and shoe, and leather market of the United States. Through its port much grain, beef and pork are exported from the West, and into the port millions of tons of coal come for distribution through New England. *Gloucester* is the leading fishing port of the United States. Wooden vessels are built there. *Worcester* is an inland trade center, and ranks first in the country for the manufacture of wire. For what are *Lowell*, *Fall River*, *New Bedford*, and *Lawrence* noted? Describe the commerce and manufactures of *Portland*. It is an important port of entry. It has fine wharfs, warehouses, and grain elevators, and dry docks for ship-repairing. For what is *Bangor* noted? Much ice is shipped. Mention other manufacturing and commercial cities. What is the only harbor in New Hampshire? It has considerable coast-wise trade, and is a distributing center for coal. Name other manufacturing towns of the State. Name the chief cities of Connecticut. What do you know of *Providence*? It is a port of entry, and is the second city in New England in size and wealth. What are its chief manufactures (Table II)? It ranks first in the Union in jewelry, silverware, and worsteds.

Written Work.—1. On outline map of New England locate the chief manufacturing cities and write a fact about each. 2. Make a list of as many articles as you can that are made in New England.

36. Cities of the Middle Atlantic States.—On what minerals do the manufacturers of these States depend? How is the coast adapted for commerce? How are the seaports connected with the interior (XXVII, 5, 8)? What do you know of the commerce and manufactures of *New York* (XXVIII, 2, and Tables II, III, IV)? It is the second commercial city of the world. Nearly half the foreign commerce of the country passes through this port, and its domestic commerce is many times greater. Why and how are goods reshipped here? What do you know of the manufactures of *Rochester* (Table II)? It is the third city in the State, and owes its importance to the Genesee Falls. The canal and railroad trade is large, as is also the lake trade through Charlotte on Lake Ontario. Describe the manufactures and commerce of *Buffalo* (Table II and XXVIII, 3). This is the second city in New York. About 1200 vessels enter and clear here annually. Compare with the trading vessels in New York harbor (Table V). Meat packing is the largest industry. The water-power of Niagara Falls is used in manufacturing. Name other important cities in New York. *Philadelphia* makes more carpets than all the rest of the country combined. It leads in woolens and leather. Why did it become a center for leather manufacturing (28)? What are the chief industries of *Pittsburg* and *Allegheny* (Table II)? Pittsburg about equals Boston in the value of its manufactures. Over half of its products are iron and steel. Name other large cities of Pennsylvania. What manufacturing

cities in Delaware (XXIX)? Name the manufactures of *Newark* (XXVIII; Table II). Of *Fersey City*. Of *Paterson*. Describe the trade and manufactures of *Baltimore* (XXIX and Table II). Name other cities of Maryland; of West Virginia. What do you know of the manufactures of *Richmond*? It became a manufacturing city because of the water-power due to its location on the "Fall Line," but it now uses much coal. *Norfolk* is the largest peanut market in the world. What of *Portsmouth*? *Petersburg*, *Lynchburg* and *Danville*? *Roanoke* and *Newport News*?

Written Work.—1. Locate on outline map all cities named in this lesson. 2. Make a list giving the chief manufacturing industry in each city and the best reason you can for its being carried on there.

37. Manufactures and Cities of the Southern States.—The Southern States now manufacture a good deal of their own raw materials. These consist chiefly of cotton and its seed, forest products, sugar, coal, iron, and rice, with the addition of cattle products in Texas. Cotton goods is the largest manufacture. In this, South Carolina ranks first, North Carolina second, and Georgia third. But every Southern State, except Florida, makes some cotton goods. Some factories have moved from New England to the Southern States, to be nearer the raw material. Yarns and coarse grades of cloth are manufactured for sale to Eastern Asia. What do you know of naval stores? For sugar and iron, see XXXIII-IV.

Wilmington ships cotton and naval stores. *Charlotte* and *Raleigh* have cotton factories and cotton-seed oil mills (XXXI). At *Newbern* there is held, every February, a fish, oyster, and game fair. Name other important places in North Carolina. Give four chief cities of Tennessee, with their industries. Give four cities of South Carolina. The harbor of *Charleston* is naturally poor, but has been much improved by jetties. A fertilizer is made there chiefly from phosphate rock. Locate four cities of Georgia. *Savannah* ships enormous amounts of naval stores and supplies northern markets with early fruit and vegetables. *Atlanta* is the meeting point of several natural routes of travel, and is therefore called the "Gate City of the South." The railroads have followed these routes. *Augusta* is called the "Lowell of the South." Why (XXXI)? Locate four important cities of Florida. *Key West* and *Tampa* rank next to New York in the import and manufacture of Cuban tobacco. Locate the four chief cities of Alabama. *Mobile* imports fruit, sisal hemp, and rubber from Mexico and Central America, and ships coal, iron, and produce to Gulf ports. *Birmingham* is the center of the iron and steel industries, and has many furnaces, mills and factories. *Montgomery* has cotton factories, cotton-seed oil mills and has a large wholesale trade.

Locate four cities of Mississippi. *Meridian* is the chief manufacturing city of the State. It gets coal cheaply from Alabama, and raw materials for its manufactures from the cotton-fields, pine forests, and iron furnaces of the South. What cities engage in river, as well as railroad, trade? Locate four cities of Louisiana. *New Orleans* is the chief manufacturing city of the South. It is the greatest cotton market of the world. How does it rank in imports? In exports (Tables III, IV)? It is a great market for the fruit and coffee of South and Central America and the West Indies, and it exports sugar, rice, and barrel heads and staves. It is a point of transfer for the foodstuffs of the West, and

the clothing and manufactured goods of the East. *Shreveport* is a railroad center, ships cotton and is an important distributing point for the surrounding country. Name other important places in Louisiana.

Locate five cities of Texas. *Galveston* ranks next to New Orleans as a cotton port. It was devastated by a great storm in 1900, and a great wall has since been constructed to protect the town from the sea. *Houston* is the chief railroad center of the State, and has a waterway to the Gulf. It exports quantities of cotton, and much lumber and rice. *Dallas* is the most important city of northern Texas. Its great manufacture is saddlery and harness. It is the seat of an annual state fair. *San Antonio* is a distributing point for southwest Texas and a favorite winter resort. *Fort Worth* is a shipping point for cattle, and has stockyards and packing-houses. *El Paso* is the gateway from the East to Mexico and California. It has smelting plants where ore from Mexico, Arizona, and New Mexico is reduced.

Written Work. 1. Locate on an outline map the cities of the Southern States named above. 2. From Tables II-V, write a paragraph on the trade of the chief Southern ports.

38. Cities of the Central States.—What are the chief minerals of these states (XXXVI)? Vegetable products? Fisheries? What are their chief exports? The facilities for transportation? What are the industries of *Louisville* (XXXVII)? On what falls is it? Of what advantage is this? Coal, iron and lumber are easily brought to the city by water. What industries arise from this (23)? *Louisville* is the chief manufacturing city of Kentucky, and the leading tobacco market in the world.

Where are *Covington* and *Newport*? How are they connected with Cincinnati (XXXVII)? They manufacture tobacco, iron, steel, liquors, clothing, and packed meats. What do you know of *Lexington*? Name other important cities of Kentucky and their industries.

Where is Cincinnati? It is connected by canal with Toledo and Cleveland. In this way it obtains material for foundry and machine shops. It makes also much clothing, boots, and shoes. Why is the lake front where *Cleveland* is situated well placed for the manufacture of steel (23)? Electrical apparatus, sewing machines, and automobiles are among its products.

For what is Toledo noted? Dayton? Akron? Columbus?

Indianapolis has extensive foundries and machine shops, flour mills, carriage and wagon factories, and makes much malt liquor and furniture. For what is *Evansville* noted? It has a number of flour mills, lumber mills, and furniture factories. Name other chief cities of Indiana. For what is *Chicago* noted? It has enormous meat-packing industries, iron and steel works, furniture factories, carriage and car shops, and publishes many books. Cotton and woolen goods, silks and laces, and various other materials are brought from the factories of Europe and the Eastern States for use in the manufacture of men's, women's, and children's clothing.

Flaxseed is obtained in Michigan and Wisconsin for the linseed oil used in making paints and varnishes. Leather products, worth sixteen million dollars, are made annually. Name other manufacturing and commercial towns of Illinois.

Locate *Detroit*. What are its occupations and advantages? Foundry and machine shops are its chief factories. It manufactures almost five million dollars' worth of druggists' preparations yearly. It has also tobacco factories, and several large meat-packing establishments. Where is *Grand Rapids*? Its chief

industry is furniture making. There are over thirty factories. Where can they get their lumber (XXXIX)? Name other cities of Michigan.

What do you know of *Milwaukee*? Its chief products are from its foundries, although it is most noted for beer. Its leather products are worth over ten millions a year, and much flour is made. Name other important cities of Wisconsin. For what is *Minneapolis* noted? The annual products of its flour mills are valued at about fifty million dollars. The lumber products which rank next, are only one-fourth as valuable. These are the two great industries of the city. Name other cities of this State. What are the cities of North Dakota? *Fargo* and *Grand Forks* lead in manufacturing, but their products are mostly for consumption within the State. What are the cities of South Dakota? Locate *St. Louis*. For what is it noted (XL)? It is the second greatest manufacturing city of the Middle West, although its products are only one-fourth as great as those of Chicago.

This is mainly due to its poorer connection with the Atlantic seaboard. The river is spanned at this point by fine bridges. Name other cities of Missouri. For what is *Des Moines* noted? It is in the center of a fine grazing region. What are other cities of Iowa? Where is *Kansas City*? The two cities of this name really form one center of population; their dividing line runs through the middle of a street. The great meat-packing establishments for which the cities are famous are on the Kansas side. Name other industrial cities of Kansas. Where is *Omaha*? With Council Bluffs and South Omaha it forms a railroad and trade center and shipping point for cattle. At South Omaha are great slaughtering and meat-packing industries.

Written Work.—1. Locate on an outline map the cities of the Central States, and state a fact about each bearing on its industries or trade. 2. Compare the industries of the Central States with those of the Southern or New England States.

39. Cities of the Rocky Mountains and Pacific States and Territories.—What are the physical features of these sections? Their chief products? Some of the cities are built where they can supply food, clothing and tools to mining regions, and smelt or refine the ores from the mines. Some are built near forests, or on salmon streams, and are engaged in lumbering or fruit canning. Which are built near the coast? In what industry may they be engaged? Which are on great transcontinental railroads? For what region is each a distributing center?

Albuquerque is a railroad center. On what system (map)? For what is it noted (XLI)? Locate *Denver*. What are its industries? It is the financial center of the mining district of Colorado. The making of iron and steel goods for use in mining processes is its largest industry. There are abundant coal and iron at hand. Flour, books and paper, cars and carriages are among the varied manufactures of this city. On what river and what railroads is *Pueblo*? What are its industries? It is near enough to coal, iron, and petroleum to enable it to smelt the lead ores of the region advantageously. Locate two other mining centers of Colorado. Where is *Cheyenne*? It is a shipping point for cattle. Name other cities of Wyoming? Where is *Helena*? It is in a rich mineral region. Describe *Butte* and *Anaconda* (XLI). Name other cities of Montana. What are the cities of Nevada? Name three cities of Arizona. *Tucson* reduces silver and copper ore. Locate two cities of Utah. Why are they so near each other? On what railroads are they? Locate two cities of Idaho.

Where is *San Francisco*? For what noted? It has a fine, deep harbor, and is the center of much trade. Its exports go chiefly to Asia; its imports also come from Asia and from Hawaii. It sells the wheat, lumber, flour, canned salmon, fruit, and meat of the Pacific region, and brings tea and silk from

China, coffee from Central America, coal from Australia and British Columbia, and sugar from Hawaii. Seal furs are brought here from the Alaskan waters, to be shipped to London for dyeing. This city makes one-half the goods manufactured in the State. Sugar is refined, beer, leather, boots and shoes, tobacco, soap, books and many other articles are made.

For what is *Portland* noted? It manufactures flour and lumber. Jetties have been built at the mouth of the Columbia River, so that Portland is really a seaport. It has much coast-wise trade in flour and lumber. Here are important shipbuilding plants. Where is *Salem*? It has flour and wool mills. Locate *Tacoma* and *Seattle*. They are, next to San Francisco, our chief seaports on the Pacific coast. What railroads terminate at *Seattle*? Fish-canning is an important industry, both here and at *Astoria*.

TABLE II

THE TWENTY-FIVE LEADING MANUFACTURING CITIES OF THE UNITED STATES, THEIR FIVE LEADING INDUSTRIES AND APPROXIMATE VALUE OF PRODUCTS IN MILLION DOLLARS. CENSUS OF 1910.

CITIES	LEADING INDUSTRIES AND VALUE IN MILLION DOLLARS	VALUE OF ALL INDUSTRIES
New York.....	Clothing (485), Printed Matter (183), Packed Meats (96), Castings and Machinery (64), Tobacco (62).....	\$2,029,693,000
Chicago.....	Meat Packing (325), Castings and Machinery (90), Clothing (85), Printed Matter (74), Iron and Steel (46).....	1,281,171,000
Philadelphia....	Clothing (59), Woolen Goods (55), Cotton Goods (47), Printed Matter (46), Castings and Machinery (39).....	746,076,000
St. Louis.....	Boots and Shoes (33), Tobacco (30), Packed Meats (27), Malt Liquors (23), Castings and Machines (14).....	328,495,000
Cleveland.....	Iron and Steel (38), Castings and Machinery (37), Automobiles (21), Clothing (19), Packed Meats (17).....	271,961,000
Detroit.....	Automobiles (60), Castings and Machinery (18), Packed Meats (12), Tobacco (12), Brass and Bronze Products (12).....	252,992,000
Pittsburg.....	Iron and Steel (102), Castings and Machinery (22), Packed Meats (13), Printed Matter (9), Cars (8).....	243,454,000
Boston.....	Printed Matter (28), Boots and Shoes (26), Clothing (22), Castings and Machinery (13), Confectionery (10).....	237,457,000
Buffalo.....	Packed Meats (25), Castings and Machinery (21), Flour (20), Automobiles (10), Soap (9).....	218,804,000
Milwaukee.....	Leather (27), Malt Liquors (20), Castings and Machinery (18), Flour (8), Boots and Shoes (8).....	208,324,000
Newark.....	Copper Refining (40), Leather (19), Castings and Machinery (15), Jewelry (13), Malt Liquors (12).....	202,511,000
Cincinnati.....	Clothing (20), Packed Meats (19), Castings and Machinery (18), Boots and Shoes (15), Printed Matter (12).....	194,516,000
Baltimore.....	Clothing (41), Copper, Tin, and Sheet-iron Products (13), Packed Meats (10), Tobacco (10), Castings and Machinery (9).....	186,978,000
Minneapolis....	Flour (79), Lumber (12), Linseed Oil (10), Castings and Machinery (7), Printed Matter (6).....	165,405,000
Kansas City, Kan.	Packed Meats (148), Castings and Machinery (2), Flour (1), Soap (1), Wooden Goods (5).....	164,081,000
San Francisco..	Sugar (12), Printed Matter (12), Packed Meats (10), Castings and Machinery (9), Canning and Preserving (5).....	133,041,000
Jersey City.....	Packed Meats (22), Petroleum (20), Sugar (14), Tobacco (11), Castings and Machinery (5).....	128,775,000
Indianapolis...	Packed Meats (39), Castings and Machinery (11), Automobiles (9), Flour (6), Printed Matter (6).....	126,522,000
Providence....	Woolens (30), Jewelry (20), Castings and Machinery (14), Silverware (6), Gold and Silver Refining (4).....	120,241,000
Rochester.....	Clothing (19), Photographic Apparatus (17), Boots and Shoes (13), Castings and Machinery (6), Printed Matter (5).....	112,676,000
Louisville....	Tobacco (16), Liquors (12), Castings and Machinery (7), Flour (7), Packed Meats (5).....	101,284,000
South Omaha...	Packed Meats (90).....	92,436,000
Youngstown....	Iron and Steel (72), Castings and Machinery (5), Lumber Products (1), Printed Matter (5), Carriages and Wagons (2).....	81,271,000
Lawrence....	Woolens (58), Cotton Goods (7), Paper (3), Machinery (2), Lumber Products (1.4).....	79,993,000
New Orleans....	Sugar (44), Hulled Rice (5), Bags (4), Cottonseed Oil (4), Malt Liquors (2).....	78,794,000

Locate *Sacramento*. It is the chief city in a long valley, which forms the granary of the State. The city manufactures considerable flour. Locate *Los Angeles*. The electric power used in this city is generated by a waterfall eighty miles away. Where is *Alameda*? It is in an orange-growing region. Canned fruit and flour are exported. Name other cities of the Pacific States.

Written Work.—Locate on an outline map the cities named in this lesson, and state some fact about each bearing on its industrial importance.

Other Countries of North America.

40. Canada.—What are the surface features of Canada (Phys. Map, N. Am.)? The climate (XX, XLIV)? The chief resources? The industries? With what nations is commerce carried on? What are the chief Canadian trade routes? By what routes does Canada trade with this country (XLIV)? With Europe? With Asia? Name the chief mineral products and tell where each is found; the products of herding; farming; forestry; fishing; hunting. In 1894 nearly a million fur-bearing animals were caught, but the product now is not half so great. The manufactures consist chiefly of flour, leather, lumber, and alcohol. Canada makes more cheese than any other country in the world. Shoes, beer, cane sugar, cotton cloth, and farm tools are made for home use. What raw materials used in these manufactures are you sure that Canada imports? Give reasons. From Fig. 23 state the chief occupations of Canada; the least important.

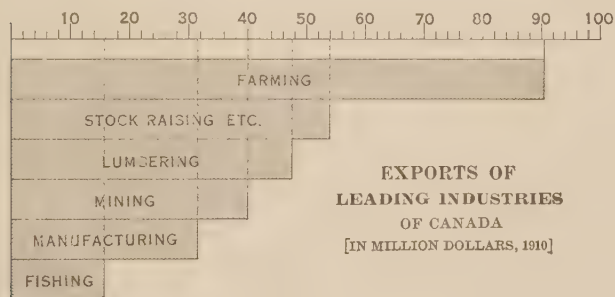


FIG. 23.

Compare with Fig. 1. In what are the industries of the two countries alike? How do they differ? Name the chief cities of Canada, and tell for what each is noted.

From Fig. 29 describe the trade of Canada with the United States. What raw materials do we buy of her? Can you tell why Toronto imports our coal while British Columbia exports coal to us? Would cost of transportation explain it? Why does Canada buy more goods of us than of Great Britain? Why does she sell Great Britain more wheat than she does to us?

Written Work.—1. From Fig. 29 write a paragraph on our trade with Canada. 2. On outline map of North America write our exports to and our imports from Canada as shown in Fig. 29.

41. Mexico (XLVI).—Give the location of Mexico; its physical features; its climate. What are its mineral products? animal? How does Mexico now rank in silver production? Find out from Fig. 24 her share of the world's production. Name the vegetable products of its several regions. The coffee of Oaxaca (wa-hä'-ka) ranks with Mocha and Java. From Fig. 25 give the three chief industries. How does manufacturing rank? Compare the industries of Mexico with those of the United States and Canada (Figs. 1, 23, 25). As in Canada, the

manufactures of Mexico consist of the necessities of life. They are generally of rude workmanship. One-third of our exports to Mexico consists of mining machinery and explosives. What railroads connect the United States and Mexico (Transportation Map, U. S.)? Steamship lines,

which carry the greater part of the trade, connect Vera Cruz and Tampico with our chief Atlantic ports. Name these lines

and tell which of our ports they enter (33). Find Carmen. It is the shipping port for the sisal hemp of Yucatan, our chief import from Mexico. Study Tables III and IV for the articles of

our trade with Mexico. Most of the mining, railroading, and foreign trade, in Mexico, is in the hands of Americans or Germans. This is due to the enterprise and engineering skill of the Americans and to the efforts of German merchants to extend their trade. What is needed to build railroads?

Written Work.—1. Consult Fig. 29 and give the best reasons you can why certain things are exported and others imported. 2. On an outline map write our exports to Mexico and our imports from that country; locate the chief seaports.

42. Central America (XLVII).—Locate Central America. Describe its surface; climate. Compare with Mexico. What are its mineral resources? Vegetable? The low plain on the east yields tropical fruits. The interior is mostly forested. Name the forest products. A medicinal gum called "balsam of Peru" is also found. The high western coast contains the plantations and farms. What are the chief farm products? Wheat, corn, cattle and sheep are produced in the higher tablelands, but not enough for the home demand. Name the states of Central America and the form of government of each. The people are entirely engaged in agriculture and mining, but the mines are little developed because transportation is poor. The people lack education, and are frequently engaged in civil war; manufactures are backward. What are the chief exports (XLVII)? The trade is chiefly controlled by foreigners.

Our largest import from Guatemala, Costa Rica, and Salvador is coffee; from Honduras and Nicaragua, bananas and mahogany. From trade map, Fig. 29, name our exports to Central America. The building of the canal has increased our trade with Panama. What are our other imports from that country? What does our trade show with regard to the industrial development of Central America?

Written Work.—1. On an outline map of Central America locate the chief seaports and steamship lines entering them, and write the exports and imports carried as in Fig. 29. 2. Write a paragraph on the republic of Panama and our interests there.

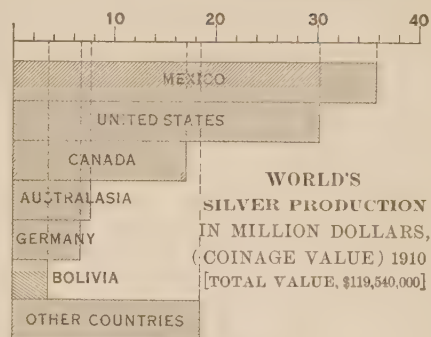


FIG. 24.

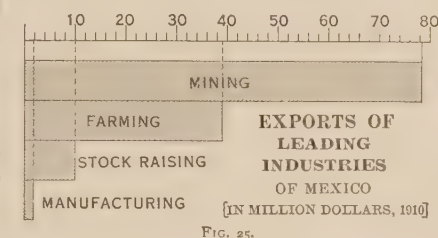


FIG. 25.

43. The West Indies.—Describe the location of these islands; their size; divisions; surface (Phys. Map, N. Am.); climate (XLVIII). Which are independent? To whom do the rest belong? From Fig. 27 name their chief products and describe their trade with us. These islands are almost entirely agricultural. The sugar industry is more important than all others combined. So much attention is given to it that food crops are neglected, and the islands depend on the United States, Canada, and South America for flour and meat. Compare the density of population in the West Indies and our country (Table VI). In the more thickly settled parts of our country and of Europe, wealth is great. This is not true in these islands. In 1899, sixty-four per cent. of the people of Cuba could not read. What bearing may this have on prosperity? Exports from Cuba have doubled since her independence. What trade-routes do you know from these islands (Trade Chart and 33)? Little attention has been given to road-building, and only the regions near the coast are developed; the farmers in the interior of Cuba and Porto Rico raise only enough fruit, vegetables, and grain for their own needs.

Since the independence of Cuba and the acquisition of Porto Rico by the United States, railroads have been begun which will connect all the leading towns on each island and make a continuous circuit of the coast. Highways also are being built and streams bridged in order to connect the rich interior regions with these roads. What do you know of Cuban tobacco (13)? From map, Fig. 27, describe our trade with the West Indies.

Written Work.—1. Write a paragraph on the industries of the West Indies. 2. Compare West Indian products with those of the United States. 3. Explain how our trade depends on the difference in climate.

44. Sugar.—The English-speaking peoples use about half of the world's supply of sugar. In the United States the average consumption is about seventy pounds a year for each person.

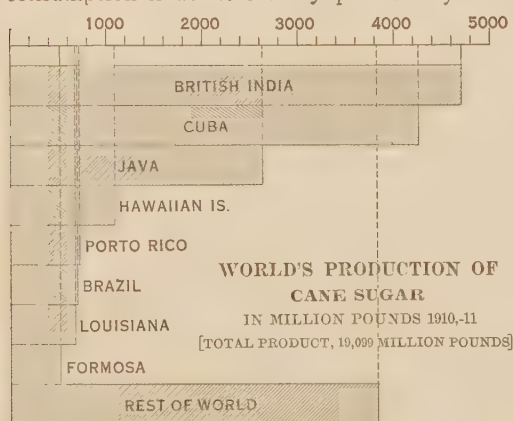


FIG. 26.

The countries that produce raw sugar are seldom the ones to refine it. Hawaiian sugar is refined in San Francisco, Cuban sugar in New York and New Orleans, and East Indian sugar in Holland. The reason for this is that the process of refining is a complicated one requiring expensive machinery. Molasses is also made from corn, from potato-starch, and from sorghum, an inferior sugar cane. In European countries the sugar grower is paid a small bounty by government. How would this affect production? The refuse beet is good food for cattle, while the refuse cane is burned. Many countries that formerly raised sugar cane at a profit have been forced by the competition of beet sugar to raise other crops. As the sugar beet can be more cheaply grown than cane in the countries that consume the sugar, the cane sugar grower is at a disadvantage, since his product must pay the cost of transportation.

Written Work.—1. Using Figs. 26 and 32, write an account of the world's production of sugar, telling in what countries and climate the sugar beet grows; also where sugar cane is grown—countries, and climate. 2. On map of the world, show by color or shading the countries producing beet and cane sugar.

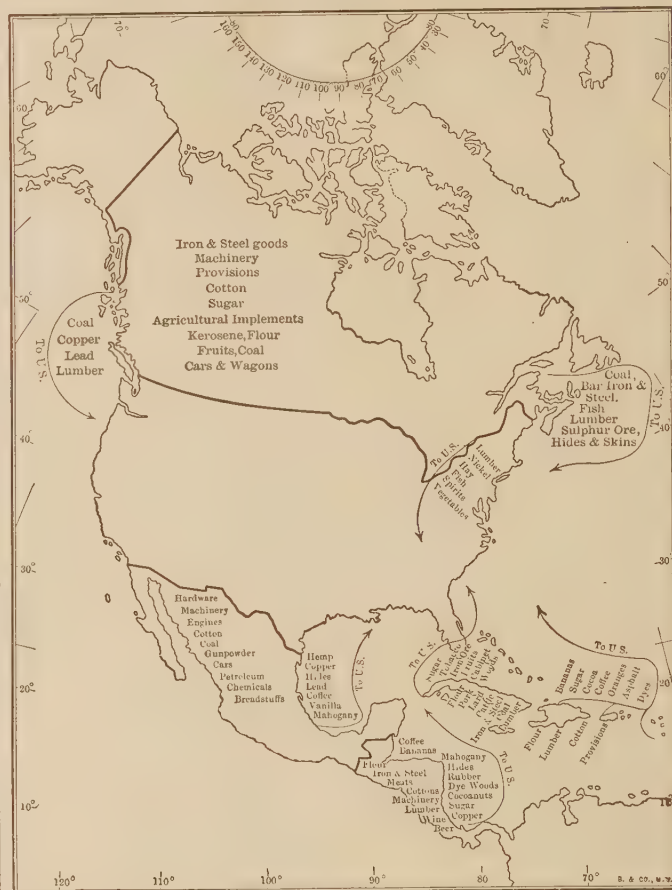


FIG. 27.—TRADE OF THE UNITED STATES WITH OTHER COUNTRIES OF NORTH AMERICA. OUR EXPORTS ARE PLACED IN THE COUNTRY BUYING THEM. OUR IMPORTS ARE PLACED NEAR THE BORDER OF THE COUNTRY THAT SELLS THEM. EXPORTS AND IMPORTS ARE NAMED IN ORDER OF THEIR VALUES.

Review of Our North American Trade.—Which parts of this continent are largely unproductive? Why? Compare our trade with the tropical part of the continent with our trade with the cold part. Name products obtained from each section. What products do we obtain from the western part of Canada? The eastern part? The central part? What are the means of transportation in each case. If instead of the Great Lakes and the St. Lawrence River, a high range of mountains separated Canada and the United States, how do you think the trade between these countries would be affected? What countries of Europe can you name that are separated by mountains? Of Asia? Do you know what effect this separation has had on these countries? Judging from the map, what do you think of the importance of our eastern coasting trade? What goods are sold to Mexico? From what part of our coast would they be sent? What goods are received at our southern ports (Table IV)? How do you think the Panama Canal will help the trade of the western coast of North America? How will it help the West Indies?

EUROPE.

45. Physical Features; Resources.—How do the United States and Europe compare in size? In latitude? In climate? How do you explain the difference in temperature (LV, 4)? Like the United States, Europe has abundant rainfall. It is brought by westerly winds and decreases with distance from the ocean until in southeastern Russia the soil is nearly barren from lack of rain. How does the direction of mountain ranges affect the rainfall of Europe? What mountains separate central from southern Europe? Effect on trade (LVIII)? In the Mediterranean countries there is little rain except in winter. Hence, successful farming depends upon irrigation.

The deeply indented shores of Western Europe give nearly every country a strip of sea-coast. What countries have no coast line? How is commerce affected by coast line? The rivers of the Great Plain are navigable. Why is this? Name the rivers valuable to commerce. What countries do these rivers help? Turn to physical map of Europe and point out the chief farming regions; the mineral regions; the grazing regions; the forests; the fisheries. Name the plants of northern Europe; of southern Europe. To what industries do some of these plants lead? How does climate affect industries in southeastern Europe? In southern Europe? In western Europe? A moist climate favors agriculture and the making of textiles (48).

Written Work.—1. On an outline map of Europe draw the chief rivers and mountain ranges. 2. Locate the mineral products. 3. The vegetable products.

46. Races; Governments; Civilization.—The people of Europe and of North America are almost entirely of the white race. What exceptions are there? Europe, though little larger than the United States, includes twenty different nations, each having its own government and language. Which of these nations are monarchies? How many of them are republics? How does western Europe compare with eastern Europe in wealth, manufactures, education and trade?

In production and trade Europe ranks first among the continents. We may divide it according to races and industries into three sections, western, eastern, and southern Europe. Western Europe is inhabited mainly by the Teutonic, the most progressive of the races. It includes Great Britain, France, Austria, Germany, Switzerland, Holland, Belgium, Norway, Sweden, and Denmark. These nations are marked by density of population, great manufacturing interests, and extensive trade. Southern Europe, including Spain, Portugal, Italy, Greece, and Turkey, is chiefly agricultural, producing fruits, wine, oil, and silk. The people are mainly of the Latin race. Eastern Europe includes Russia, Hungary, Servia, Roumania, and Bulgaria. Farm crops and stock are the chief products, and the ruling people are, except in Hungary, of the Slavonic race. From a study of the following table you will see what seems to be the relation between intelligence and trade.

SECTIONS.	POPULATION PER SQUARE MILE.	VALUE OF FOR- EIGN TRADE PER PERSON.	CANNOT READ NOR WRITE.	SUPPORTED BY THE STATE (PAUPERS).
Western Europe.....	340	\$120	5%	3%
Southern Europe.....	130	15	65%	15%
Eastern Europe.....	110	12	70%	10%

FIG. 28.

Western Europe can support a large population because it has many industries which give employment to thousands of people. Southern and eastern Europe, where there are fewer profitable occupations, furnish the most of the immigrants that come to America. Remembering that manu-

facturing is most expensive in western Europe, we may learn from Fig. 30 that there is more wealth and intelligence, and less poverty and ignorance in manufacturing and commercial countries than in those that are mainly devoted to farming and herding.

Written Work.—1. On outline map of Europe write in each country its race and leading industry. 2. Write a paragraph comparing Russia and France in regard to government and industries. 3. Compare Belgium with Italy as to industries, referring to natural resources and climate as causes of difference.

47. The United States and Europe.—British trading companies established the first English colonies in America and developed the country in the interest of commerce (see London and Plymouth companies, U. S. histories). But in those days the British Government thought only of its own interests. "The only use of colonies," said one Englishman, "is to furnish freight for our ships and a market for our goods." Manufacturing in the colonies was forbidden, and trade allowed with England only. In this way a dispute grew up over production and trade which led to the Revolutionary War and the independence of the United States. Long after the Revolution, this country remained dependent on Europe for manufactured goods, exchanging for them lumber, fish, tobacco, and indigo.

The wars of France and England and their interference with our seamen led to the War of 1812. Our victories in this war secured respect for our flag and safety for our ships. The interruption to trade caused by war led to an increase in home manufactures. The invention of the cotton-gin had already led to the export of cotton, and the building of railroads and canals that opened the Mississippi Valley to trade led to the exporting of grain and meat to the overpopulated manufacturing countries of Europe. These still form half our exports, being worth over seven hundred million dollars a year. Our export of manufactured goods has, however, continually increased. In 1820, 7½% of our exports were manufactures, in 1904, 32%. Owing to labor-saving machinery and skilled workmen much of our manufacturing is conducted at less cost than in European countries. This enables us to pay high wages, and yet produce cheap goods.

While we were spending our energies in opening up new lands and in developing railroads most of our manufactures were consumed at home, and we cared less about trade with foreign nations. But now that we are beginning to export more manufactures, we are coming into competition with European merchants in Asia, Africa, and South America. Moreover, our possessions in the Pacific and the West Indies bring us into closer relations with the nations of Europe. There is increasing travel between the old world and the new, due to improvement in steam navigation. More people go every year from New York to England than from New York to San Francisco, and the cost of the journey is less. Five-sevenths of our exports are sent to western Europe, and half of our imports are bought there. The great manufacturing cities there buy raw materials for their factories and food for their people from us and sell to us many of their manufactures. Thus our commercial and political relations with the people of Europe are very close.

Written Work.—Make a list of our manufactures exported to Europe (Table III).

48. The United Kingdom.—Of what commercial advantage to Great Britain are the following: location? numerous estuaries, or sunken river valleys, along the coast? a mild and moist climate? (such a climate favors textile industries, as all fibers are more easily spun when slightly damp); vast deposits of coal and iron? numerous colonies in every part of the globe? Until recently, Great Britain was the chief manufacturing nation of the world. Which nation is first now (Fig. 9)? England was the first of modern nations to make iron and steel. The first modern ship-canal was made in England. The spinning machine, power loom, the steam engine, and locomotive were first made there. Being the first great manufacturing nation and having many ships and colonies, Great Britain secured a large part of the

world's trade and still holds it (LVI). What is the character of the British people (LVI, 3)? Find four cities located in the coal fields of Great Britain. What are their industries? In what parts of the country are the agricultural industries? What are



FIG. 29.—INDUSTRIAL MAP OF THE BRITISH ISLES.

the leading crops and animals? Where are the fisheries? What kinds of fish are found? What manufactures are produced in Ireland? What cities are engaged in ship-building?

Compare the shipping of Great Britain with that of other countries; the railroads; the iron and steel product; exports; imports. How does the balance of trade stand? More than half the commerce of the world is carried by British vessels. The money which England receives for this helps to offset the trade balance against her. Besides her manufactures and trade Great Britain has valuable fisheries and is, according to size, a great farming and stock-raising country.

Written Work.—1. On an outline map of the British Isles locate chief seaports and steamship lines entering them (p. 93). **2.** On an outline map of the world show by color or shading the British colonies.

49. Manufacturing Cities of the United Kingdom.—These are grouped largely in the various coal-producing regions. Locate *Newcastle*. It is the chief city of the northern coal field. What are its manufactures? Find *Sheffield* and *Leeds*. Of what industries is each the center? Find *Manchester*. A ship canal from the Mersey makes this city a port. Of what industry is it the center? What is that mining field called which includes *Birmingham* (LVI, 12)? For what is it noted? Near Birmingham is a region called "The Potteries" because of the earthenware and china made from the clay found in the neighborhood. Find *Cardiff* in Wales. It is the chief of a group of cities using the

coal of the region to feed iron and copper furnaces, and leads in the export of hard coal. Find *Glasgow*. The coal fields of Scotland supply its furnaces and the ship-building works on the Clyde. Several British cities are noted for special products, as *Nottingham* for lace, *Paisley* for shawls, *Belfast* for linen, *Worcester* for china, and *Bradford* for broadcloth. *London* imports and distributes more goods than any other city, but its exports are comparatively small. Why is this? Locate *Liverpool*. What is its commercial rank? Its harbor is kept open at great cost. Its trade is chiefly with America and West Africa. Foods and cotton are imported, and the goods and machinery made in the great factories of northern England are exported. The harbor of *Glasgow* consists of basins and docks built along the Clyde. This city imports ore and raw material, and sends out ships, iron and steel, glass, and other manufactures of the Scottish mills. *Newcastle* exports machinery and coal. Why (Fig. 31)? Locate *Hull*. The cotton and woolen goods of the northern mills are sent from here to the continent of Europe. There is considerable cross-channel trade with the continent of Europe from *Dover* and *Southampton*. American and South African vessels land passengers for London at these ports. *Queenstown*, in Ireland, is a station for American mails.

Written Work.—1. From tables III and IV make a map showing our trade with the United Kingdom (See Fig. 27). **2.** Locate on an outline map the chief manufacturing centers of Great Britain and Ireland and write under the city the name of the chief industry of that place.

50. France.—(Review Map Studies). Describe the position, size, surface features, and climate of France. Why is France better located than England for trade with the East? What are its chief agricultural products (Fig. 30)? What section is noted for horses? The north of France produces breeds of horses famous for size and strength. They have been introduced into all civilized countries. France has long been noted as a fruit-growing country. The farms are small and carefully cultivated. The French farmer is skilful in the production of new varieties of pears, apples, peaches, and grapes. In wine France surpasses all other countries. What others rank high (Fig. 33)? From what countries do we import wine (Table IV)? What other beverages obtained from fruits are produced in France? In what parts are cattle and sheep chiefly raised? The chief iron and steel works are at St. Etienne, where coal and iron occur together. In what other region is coal found? To other centers iron ore is imported from Belgium, Spain, and Germany. Coal comes from Cardiff. Salt mines are worked near Nancy, and building stone, cement, clay, and phosphate are found. The fine clays of central France give rise to the pottery industries of Limoges and Sèvres. "Plaster of Paris" is a well known white cement. How does France rank in manufactures (Fig. 19)? France leads the world in the production of high grade and brocaded silks. The process of making brocaded silk by machinery was invented by a Frenchman of Lyon named Jacquard, and is well known as the "Jacquard" loom. French goods bring a high price because of their artistic workmanship.

A pair of ladies' shoes from Paris, a dress, a hat, a piece of jewelry, or a vase may sell for ten times as much as the same article produced elsewhere. Transportation within the country is mainly by means of rivers and the numerous canals connecting them. How does France rank in railroad mileage (Fig. 20)? In shipping (Fig. 21)? Compare the value of her exports and imports (Table VI). What does she buy from us? Sell to us (Tables III, IV)? Havre is the chief port of entry for American goods.



FIG. 30.—INDUSTRIAL MAP OF FRANCE.

Fine cloths, wines, millinery goods, and articles of luxury are sent to America through this port. Cabinet woods from Central America, coffee, cocoa, metals from South America, and coal from Wales are also brought to Havre. Marseilles is the second important port. Its trade is largely with eastern countries and Africa. Wheat from Russia, raw silk from Turkey and Central Asia, cotton from India and Egypt, wool, hides, and skins from Africa are brought into the port of Marseilles.

Written Work.—1. On outline map of Europe locate the chief ports and manufacturing cities of France and write under each its chief product. 2. On a similar map indicate trade with the United States, as in Fig. 27.

51. Belgium.—What part of Europe does this country occupy? What do you know of the population and industries of Belgium (LXII)? What harbor and what navigable rivers has it? What natural wealth favors manufacturing? Belgium produces more manufactured goods per person than any other nation in the world. For what is Liege noted? Ghent? Bruges? Brussels? Ostend (LXII)? Belgium was the first of modern European countries to make woollen cloth, and still leads in this industry. It has, next to Ireland, the finest facilities for making linen. The water of the river Lys is well adapted to the bleaching of flax, and the dense population of the country furnishes the labor needed. This flax is made into fine laces, linens, lawns, and cambrics. Hand-made lace requires much labor. In the city of Mechlin, over two hundred thousand women and girls are lace-makers. What are the total values of Belgium's exports and imports (Table VI)? What part of her trade is with us (Table VI)?

Written Work.—1. On outline map of Central Europe already begun, write our exchanges with Belgium. 2. Make a list of the leading manufactures of Belgium and a city noted for each.

52. Holland and Denmark are the lowest and flattest countries in Europe. For what products are both noted (LXII).

1, 6)? Holland is also noted for its colonial possessions and extensive commerce. Describe its colonies (LXII). Dutch ships distribute colonial products all over the world, and do a large carrying business for other nations. Why is transportation easy in Holland? Smooth wagon-roads paved with brick intersect the country. Railroad building is easy, but many bridges must be built. Why? On account of cheap transportation Holland imports and forwards goods from her ports to the countries of Central Europe. The winds are a great source of power. What use is made of them?

Holland has no coal, iron, or other metals. What effect does this have on her industries? Building materials and timber are also lacking. Brick, tile, and earthenware are made in abundance. Butter, cheese, meat, and oleomargarine are leading exports. Besides jewelry and diamonds we buy from Holland tobacco, tin, fish, hides, and cheese. Where do you think she produces each of these?

Denmark produces and exports mainly milk, butter, and cheese. Beef, cattle, horses, wool, and eggs, are also sold. What is the value of our imports from Denmark? Why so small?

They consist chiefly of hides, wool, and rennet, a substance used in cheese-making. We sell to Denmark oil-cake, grain, flour, cotton, and kerosene. Manufacturing is little developed on account of a lack of minerals. Flour, beet-sugar, and liquors are made, and Copenhagen builds ships out of Norway lumber. The most careful attention is given to butter-making,



FIG. 31.—INDUSTRIAL MAP OF BELGIUM AND THE NETHERLANDS.

There are over one thousand steam factories, where it is packed and salted to meet the demands of all markets. Enormous quantities are exported. Great Britain and Germany are the largest buyers of Dutch and Danish articles of food.

Written Work.—1. On outline map of Europe write our exports to Holland and Denmark, and the things we receive from them. 2. On a similar map locate ports, manufacturing cities, and the chief products.

53. The German Empire.—(Review Map Studies and LXI.) What is the surface of Germany? Describe its climate. Mineral resources. Its rank in production of coal. Iron and steel. Copper. Silver. What are its agricultural products (Fig. 33)?



FIG. 32.

A naturally poor soil in most of the empire has been made very productive by skilful farming, and yet she does not produce enough food for her people. How does Germany rank in the production of wheat? Rye? Oats? Barley? Sugar? Lumber (Figs. 2-6, 36)? Potatoes and rye bread form the chief food. The "black bread" of the German peasants is made of rye flour. The larger part of the northern plain of Europe has a light, sandy soil, suitable for rye, though too poor for wheat. What is the rank of Germany in manufactures (Fig. 19)?

Next to the United States she has made more progress in manufactures than any other country. She sends us fine knives, scissors, and other cutlery,



FIG. 33.—INDUSTRIAL MAP OF GERMANY.

and we sell her agricultural machinery. Germany sends many hides and skins to us to be tanned, and imports shoes and shoe leather from us. Where is much tanning done in this country (Table II)? What are the chief manufactures of Germany? What German state is noted for woolen goods? For wines? What is the total value of her exports and imports (Table VI)? What part of her trade is with us (Table VI)? What are the chief articles of our trade with Germany (Tables III, IV)? What are the chief German railroad centers? Trace routes to Vienna, Paris, St. Petersburg, Constantinople, and Rome. Germany is connected also by canals and rivers with the neighboring countries with which the bulk of her trade is carried on. Many of these are owned by the government. What do you know of German canals (LXI)? Steamers go up the Rhine and by canal to the Rhone. From map, Fig. 35, tell what city is noted for pottery? Toys? Wine? Woolen and linen goods? Printing? What are the great German ports?

Written Work.—1. From Tables III and IV, write on the outline map of Central Europe our imports from and our exports to Germany. 2. On a similar map locate the chief German seaports, manufacturing towns, and a leading product of each.

54. Switzerland (Review LXIII) has to pay large sums of money to other countries for carrying her goods. Why is this? How does the surface of the country affect production? Next to Norway, Switzerland is the poorest farming country in Europe. She has few minerals. Hence manufacturing and dairying are the only profitable occupations. Transportation is well provided for. Fine wagon roads are built along the valleys and through the mountain passes. Several tunnels connect the country with Italy.

Swiss scenery is one of the financial resources of the country. Travellers spend over seventy million dollars there annually. The railroads earn over ten million dollars annually. One-third of the people are engaged in manufacturing. The products are noted for *quality* rather than *quantity*. No attempt is made to produce cheap goods. What cities are noted for silks (LXIII)? Thousands of hand looms in Zurich and St. Gall turn out the richest of silks, laces, and embroideries. Swiss muslins are sold all over the world. Geneva watches and engraved and enamelled jewelry command high prices. Straw braid for hats, wood-carvings, leather goods, fine machinery, and scientific instruments are other characteristic products. The Swiss maintain technical schools to train workmen for their factories. Besides textiles, we import cheese, clocks and watches, aniline dyes, and rennet from Switzerland, and sell her raw cotton, iron and steel goods, and chemicals. Swiss trade is mainly with her neighbors, France, Germany and Italy.

Written Work.—1. On outline trade map write our exports to and our imports from Switzerland. 2. On a similar map locate manufacturing cities and the chief product of each.

55. Norway and Sweden are now distinct kingdoms. Describe the surface of these countries (LVII, 9). Less than one-twentieth of the soil of Norway and one-tenth of that of Sweden is fit for cultivation, thus the population is sparse. Half the Swedes and one-fourth the Norwegians are farmers, and yet the land is so poor that food has to be imported. Norway has more sailors and ships, according to her population, than any other country. Compare with other nations (Fig. 21). The numerous swift mountain streams furnish power for 5000 saw mills. The forests of Norway are nearly exhausted, but Sweden is the largest lumber *exporting* country in the world. The mining and manufacture of iron is the second largest industry in Sweden. Swedish iron made from charcoal is used for hardening steel. How does the country rank in this product (Fig. 17)?

The fisheries are very valuable, employing fifty thousand men. The banks near the Lofoten Islands are, next to those of Canada, the most valuable fishing-grounds in the world. Manufacturing is not extensive. Coarse

textiles, wood-pulp, and matches are the chief ones. The United States buys iron, wood-pulp and fish of these countries and sells them cotton, oil, bread-stuffs, farm tools, leather, and tobacco. How does the balance of trade stand with them (Table VI)? From what source besides exports does money come into these countries?

Written Work.—1. Color on outline map of the world the lumber producing countries (Fig. 6). 2. Fill out on outline map of Norway and Sweden the exports to and imports from the United States.

56. Spain and Portugal (LVIII).—Describe the surface; climate; natural resources. The dry climate of Spain is due to the mountains that border the coast. Only the coast plains and river valleys are fertile. Agriculture in the central plateau region depends on irrigation. What are the mineral products? These are not much used in manufacturing, but are exported as raw materials to be manufactured in Great Britain, Germany, and France. Seventy-five per cent. of the people are illiterate, which helps to account for the backward condition of all industries in



FIG. 34.

Spain. How does Spain rank in the production of barley (Fig. 34)? Wool (Fig. 45)? Coal (Fig. 11)? Spain is the largest iron-exporting country in Europe. In what part is the iron found (p. 87)? The port of Bilbao ships most of it? How do these countries rank in copper (Fig. 13)? What is the silver production of Spain (Fig. 25)? Besides cotton we sell to Spain chiefly tobacco, lumber, and kerosene, and receive from her cork, wine, fruits, nuts, pyrites, and licorice. From Portugal we receive cork, wine, argol, rubber, and cocoa. From what colonies might Portugal obtain the last two articles (LXXVIII)? Pyrites is an iron ore from which sulphur is obtained. Argol is a name given to the settlings of wine; from it important medicines are made. Our exports to Portugal are the same as to Spain. Compare the values of the exports and imports of each of these countries and find the balance of trade (Table VI).

Written Work.—1. On trade map write our exchanges with Spain and Portugal. 2. Locate on outline map of Europe the chief cities and ports of Spain and Portugal; tell what each city is noted for (LVIII).

57. Italy.—What does Italy comprise (LVIII)? Describe its surface. Its fisheries. What are the mineral products? Is there coal? What are its agricultural products? Much of the land is rich, but it is mostly owned in large estates, and does not produce food enough for the people. Many Italian peasants

emigrate, large numbers coming to this country. The lack of coal is a drawback to manufacturing, yet cotton, silk and woolen goods are made in the large cities, fine glass at Venice, cutlery at Milan, straw goods at Leghorn, and coral jewelry at Venice and Florence. Venetian glass, Leghorn hats, and Etruscan jewelry are famous. Red coral is found near the west coast; its manufacture is an old Italian industry, amounting to many million dollars a year. What is the value of the foreign trade of Italy (Table VI)? How do her exports and imports compare? What is her rank in shipping (Fig. 21)? She sells more goods to her neighbors, Switzerland, Germany, and France, than elsewhere; these are chiefly raw materials and fruits. Describe her trade with us (Tables III, IV). We also buy of Italy sulphur, olive oil, cheese, straw braid, marble, and wine, and sell to her tobacco, lumber and kerosene.

Written Work.—1. Locate on map the chief Italian cities and write a statement about each. 2. On outline map indicate our trade with Italy.

58. The Balkan States take their name from the Balkan Mountains.—Locate *Greece* (LIX). Describe surface and coast. What are its natural divisions? Its occupations? Its chief exports? Greece imports about two-thirds of the grain and flour it uses. It buys coal of Great Britain, and petroleum of Russia. Of the United States Greece buys kerosene, cotton, and machinery, and sells us fruit, cheese, marble, licorice, and valonia (LIX). How do its imports and exports compare (Table V)? What is its chief port? What part do the Grecians take in the trade of the Levant (LIX)? They pay in part for their imports with the earnings of their ships. What other countries do this (48, 55)?

Of what does *Turkey* consist? What is the surface? Climate? Coast? Resources? What are the manufactures of Constantinople? Adrianople? Saloniki? What is the value of its exports? Imports (Table VI)? What are its chief exports (LIX)? Our chief imports from Turkey are carpets, tobacco, hides, and opium. Find value from Table IV. We sell to her meats, cotton, steel, and leather. Value? The chief harbors are those of Constantinople and Saloniki. What is the "Golden Horn"?

There are very few schools in Turkey, and the government is bad. As the Turks have no such carrying trade as Greece, they have nothing to offset the excess of their imports over their exports, and the country is practically bankrupt. Constantinople is a famous market for oriental goods, especially carpets and rugs. Many merchants in America and Europe send buyers there every year.

Roumania, Bulgaria, Servia, Montenegro.—Locate these states (Pol. Map, Europe). Describe the surface of each (Phys. Map, Europe). What are the chief occupations in each? What are the products? Find the chief cities in each. These countries are now free from Turkey under whose rule they long suffered from bad government. They are improving in education and industries. Their trade is almost entirely with European countries. Yet, like Russia, they buy agricultural implements of us. Our imports from these states are almost entirely hides and goat skins.

Written Work.—1. Draw an outline map of the Balkan States and locate the chief ports, manufacturing cities, and productions. 2. On a similar map write our exports to these countries and our imports from them.

59. Austria-Hungary.—Locate Austria - Hungary (LXIII). What is its surface? Its minerals? Its agricultural products? Half the people are farmers. How does it rank in the production of wheat (Fig. 2)? Rye (Fig. 31)? Barley (Fig. 34)? Where is its manufacturing region? What are its chief manufactures? Locate the following cities and tell for what industries each is noted: Vienna; Prague; Gratz; Brunn; Budapest; Szegedin; Lemberg; Williczka; Berchtesgaden. Compare the imports and exports of Austria-Hungary (Table V). How does it rank in shipping (Fig. 21)? What is the value of its trade with us (Table V)? Its trade is almost entirely with northern Europe. It sells half its food exports to Germany, and buys one third of its imports there. The leading imports are cotton, coal, silk, wool, copper, and machinery. She sells to us flax, beet-sugar, glass-ware, beer, and hides, and buys raw cotton, copper, kerosene, and machinery. It has considerable trade with eastern countries, supplying the leading imports of Roumania, Bulgaria, and Servia, and handling their exports. What is peculiar about the government (LXIII)? The progress of the country is much hindered by the quarrels of different races forming the population.

Written Work.—1. On outline map of Central Europe place the chief cities and railroads of Austria-Hungary. Write a statement about each manufacturing city. 2. Write a paragraph comparing the industrial development of Austria-Hungary with that of Germany, giving reasons for the difference. 3. On trade map place our exchanges with Austria-Hungary.

60. Russia.—Where is Russia? What is its size (LVII)? Its climate? Its surface? Its mineral wealth? Animal? Vegetable? What are the chief pursuits of the people? Nine-

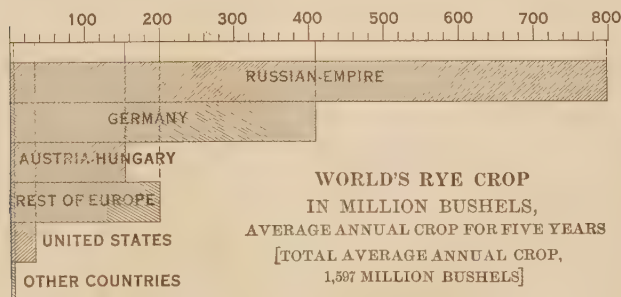


FIG. 35.

tenths of the people are farmers. Russia is the greatest grain-raising country in the world. (Compare Figs 2, 4, 35, 36.) The manufacturing is done mostly in a few large cities; it consists chiefly of cotton goods, articles of leather, wood, steel, clay, and paper, chemicals, tobacco, and sugar. Home manufacturers nearly supply the home market. What do you know of government and education in Russia? What are the peculiarities of its internal trade (LVII, 3)? The trade of the country is mainly domestic. There is a high tariff on all manufactured goods for the purpose of encouraging home production. Our agricultural implements and machinery are admitted at a lower rate than other goods, to improve the farmer. Germany and Great Britain have about half the Russian trade. What is its trade with China (LVII, 6)? With what nation is its chief maritime trade? What are the amounts of its exports and imports (Table VI)? How do they compare? What is its trade with us? Russia sells us hides, wool, hemp, and flax, and buys cotton, copper, and farm

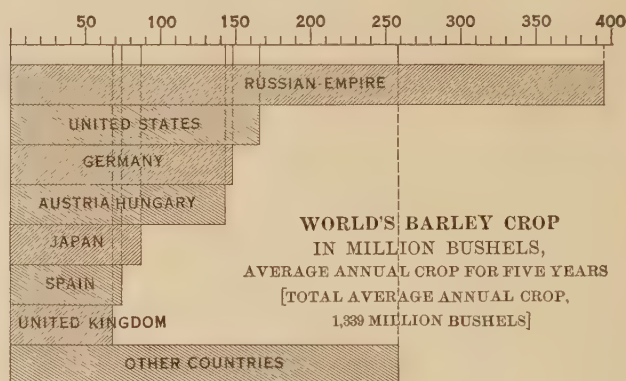


FIG. 36.

machinery, which is the best in the world (Table III). What is its chief commercial city (LVII, 8)? For what industries is Moscow noted? Warsaw? Odessa? Cronstadt? Kazan? Saratov? Archangel? Astrakhan? Riga?

Written Work.—1. On outline map of Europe write our exports to Russia and our imports. 2. Locate the chief cities and write a statement about each.

SOUTH AMERICA.

61. Physical Features.—(Review Map Studies). Compare the Atlantic and Pacific slopes as to extent and rivers. Which slope has the greater commercial advantages? Why? What products are brought down the Amazon? The Orinoco? The La Plata? How are goods transported from the Andes plateaus to the coast (LIII)? Which coast is more productive? Why? Compare the climates of the eastern and western coasts at the equator; at the tropic of Capricorn; at 10° South latitude. Account for the difference. Describe the climate of the Andes Highland; of the Selvas; of the Pampas. What is the effect on products?

Commerce is greatly hindered by natural impediments to transportation. Among these are poor harbors, mountain ranges cut by swift streams and gorges, unhealthy coast plains, and interior marshes.

Written Work.—1. On outline map of South America write the leading plants cultivated; the leading minerals. 2. On another map draw the navigable rivers, and name them.

62. The People of South America.—About 80% of the people of South America can neither read nor write. Most of the inhabitants of the interior are wild Indians. How does intelligence affect production? Why will an intelligent farmer raise more and better crops than an ignorant one? Name some occupations that ignorant laborers can not engage in.

The people of South America have republican forms of government, but ambitious leaders keep them disturbed by civil wars. In what ways does this disturb production? Good wagon roads are found along the coast, but in the interior the roads are chiefly mule paths. Numerous lines of railroad run from coast towns for short distances into the interior, but the great heart of the continent, except in Argentina, is still a wilderness.

The La Plata countries and Brazil have been greatly helped by foreign immigration and foreign capital. Nearly 2,000,000 Europeans have come to these countries during the last twenty-five years, and have built up important manufacturing industries. British, French or German capitalists control the more important railroads, mines, and the larger farming and stock-raising industries. What have you learned about the people of South America (L. 5)?

Written Work.—1. Make a list of the occupations that a person who does not know how to read and write cannot engage in. What does this show about the value of education? 2. Write a paragraph on the races of South America.

63. Our Trade Relations with South America.—In our trade with the countries of South America we can see the effects of distance and of poor transportation. From Table VI find our share of the foreign trade of Venezuela; of Colombia; of Brazil; of Argentina, Chile, and Peru. How does distance seem to affect it? What is the latitude of New York? Of Rio? How much farther east is the latter port? Measure the distance from Para to Europe; to New York; notice that South America is about as near to Europe as to the United States.

But a great hindrance to our trade with South America is the lack of regular and frequent steamship-service. Fifty European vessels to one American vessel enter the ports of Rio and Valparaiso. The South American merchant ordering goods from Europe is sure of their prompt delivery; but he may have to wait a month before receiving them from the United States. The European merchant also allows him a longer time in which to pay for them.

South America needs our manufactured goods and we need the raw products and foods of her tropical countries. Many of these now go first to Europe and are then brought to us, thereby increasing the cost. Many American goods also, destined for South American ports, are first carried to Europe and then forwarded to their destination. This is because there is better service between Europe and the United States and between Europe and South America than there is between the United States and South America. Thus both our exports and imports are carried at the greatest disadvantage. It is also said by our consuls residing in South America that American merchants fail to secure trade because they do not prepare goods according to the tastes and needs of the South American people. Circulars and labels that are put on goods are printed in English, a language which the people cannot read. What languages should be used?

Written Work.—1. Make a list of all the things which hinder our trade with South America and tell how each affects trade.

64. Brazil.—Describe the location and physical features of Brazil (LI). Compare with the United States as to size and population. What are the products of the coast plain? The highlands? The Amazon Valley? In what parts of Brazil do you find stock (Phys. Map, S. America)? Are there many harbors along the coast? What ports have railroads leading inland (Pol. Map, S. America). These roads bring the beef, hides, cotton, coffee, and other products of the coast and highland regions to the seaboard. Many of these coast towns have developed manufacturing.

Cottons, woollens, silks, and carpets are made at Rio, Nictheroy, Maranhao, Porto Alegre, and Rio Grande do Sul. There are numerous sugar mills and a few refineries in Campos, Bahia, and Pernambuco. Flour, leather goods, and articles of wood are made at various places.

Most of the people of Brazil are engaged in agriculture. The cultivated lands are almost entirely within a few hundred miles of the coast. Coffee and sugar are the leading products. Cotton, hides, cocoa, tobacco, are next in value.

What other farm and forest products come from Brazil? What of its mineral wealth? Coal and petroleum are both found, but are mined in small

quantities. Gold and diamonds are the most valuable mineral products. Monazite sand, used in making mantles for incandescent electric lights, is a growing export. Besides coffee, rubber, and sugar, Brazil sends to the United States, dyes, nuts, cocoa, and hides. Our largest exports to that country are wheat flour, kerosene, machinery, and hardware. Besides these, lard and bacon, scientific apparatus, cottons, cotton-seed oil, and engines are most important.

Written Work.—1. On outline map of South America write the chief productions of Brazil and the leading towns and seaports. 2. On a similar map write our exports to and our imports from that country. 3. On outline map of the world shade the coffee-growing countries (see index under coffee).

65. Coffee and Rubber are the chief products of Brazil, forming five-sixths of the total exports of the country. The eastern slopes of the Brazilian Andes are the richest coffee region in the world. The soil is a reddish volcanic ash, rich in iron, which seems necessary to successful coffee culture.

The original home of the coffee tree was in Yemen, in Southern Arabia, where Mocha, the most expensive variety, is still grown. The tree is an ever-green growing to the height of about 25 feet if left to itself, but it is pruned down to grow as a spreading shrub to an average height of ten feet. It grows only in the tropics, and best on well-watered mountain sides. It cannot endure the hot sun, and so on the lower mountain levels is cultivated in the shade of larger trees. The fruit is a berry of the size and appearance of a cranberry. It contains usually two "beans," which are removed by crushing or "pulping" the fruit when ripe. The coffee beans are then dried in the sun for a few days, after which the seed coats which cover them are removed by machinery. The coffee is then graded according to size by allowing it to roll down a tube or sieve pierced with holes of different sizes. But the quality does not depend on size alone. The full-rounded beans are the best. In Arabia and Turkey skilled workmen sort the coffee by hand, the best grades of hand-sorted coffee often bringing four or five dollars a pound. Coffee is put up in bags of 132 pounds each and is then ready for export. What part of the world's supply of coffee does Brazil produce?

The name "*India-rubber*" indicates what was once the chief source and use of this substance. An American named Charles Goodyear discovered in 1842 a way of hardening rubber by melting sulphur with it so that it could be worked into any form desired. This process is called "vulcanizing," and was the beginning of one of the greatest of our manufacturing industries.

Where is rubber obtained (index)? The chief industry of the Amazon is rubber-gathering. The men go in boats up the river and its branches to the rubber groves. The trees are gashed with a hatchet and a cup put underneath the wound to catch the milky juice which slowly oozes out. When a quantity of the sap is obtained it is taken to the camp and coagulated. This is done by dipping a wooden paddle in the juice and then holding it in the smoke from burning palm nuts. The juice thickens and changes to the familiar reddish-brown of rubber. The paddle is then dipped again and again until a coating of rubber weighing several pounds adheres to it. This is then cut through on one side and removed. The rubber is taken by boats to Para or Manaus, where it sells for about fifty-five cents a pound. The usual annual product of Brazil is about 3,000 tons, half of which is exported to the United States.

Written Work.—1. On outline map of the world indicate by shading the coffee-growing regions. 2. In the same way indicate rubber-producing regions. (See maps and index.)

66. The Guiana Colonies and Venezuela.—What nations own the Guiana colonies (LI)? Describe the surface and climate; animal life; productions and exports. The climate of these colonies is too unhealthy for Europeans, and the work on the plantation is done by negroes. Cane sugar has long been the chief product, but the fall in price due to the competition of beet sugar has compelled many planters to raise coffee, cocoa, tobacco, and rice instead.

The low strip of coast is the only cultivated land; back of this is a rough, mountainous country where considerable gold is washed out of the sandy beds of mountain streams. Our imports from the Guianas are cocoa, sugar, and small amounts of coffee and phosphate rock. We sell them flour, meat, cloth, kerosene, steel, and manufactures of wood.

Venezuela lies mainly in the Orinoco Valley. Describe the surface of the other parts. The country is largely forest-covered and unexplored. The northern highlands about Caracas and Valencia are the chief farming region. What are the two leading products (LI)? Many cattle are raised on the llanos. The hides are the most valuable part of the animal and are exported. What metals are mined? Next to coffee and cocoa, asphalt is the largest export. For what is asphalt used? Rubber, cabinet and dyewoods, vanilla, and copaiba balsam, a valuable medicine, are obtained from the forests.

As in the case of other South American countries, civil wars have retarded the growth of population and industries. How many people are there to the square mile in Venezuela? Compare with the United States. What are the chief cities? They are built on the highlands at a distance from the sea and are connected with the nearest ports by short lines of railroad. The United States has half of Venezuela's trade, buying most of her coffee and asphalt and selling her cotton, butter, lard, hams, flour, kerosene, and lumber.

Written Work.—1. On an outline map of Venezuela, locate chief towns and products. 2. On an outline map of South America write our imports from Venezuela and our exports to that country.

67. Colombia.—In what natural divisions of the continent does Colombia lie (LII, 4)? How do the Andes affect the climate and vegetation (LII, 5)? How do they affect transportation? What are the products of each natural section? The plateaus along the Cauca and Magdalena rivers are the most valuable and healthful parts of the country. The climate and products of these plateaus are those of the temperate zone. Along the coasts, sugar, coffee, cacao, and fruits are grown. The mountain regions are rich in minerals. Coal and iron occur together near Bogotá and have given rise to iron industries. But the cities of Colombia cannot use home coal, for it costs more to bring it from the mines on the backs of mules than to import it from the United States.

A large part of Colombia is in the upper Amazon Valley. Much of it is forest-covered, yielding the same products as Venezuela. The llanos also extend into Colombia, where many cattle are raised, and leather and shoes are made from the hides at Barranquilla. Cattle, hides, "jerkerd" beef, and tobacco are largely exported to the West Indies. Coffee, cocoanuts, hides, and bananas are sent to the United States in return for our cottons, flour, meats, iron and steel, shoes, coal, and kerosene. What is the entire value of Colombia's foreign trade (Table VI)? What is our share of it? What is the density of population? Name some circumstances that interfere with production in Colombia. Manufactures are very crude, embracing hats, shoes, iron, candles, soap, and liquors.

Written Work.—1. Draw sketch map and locate chief towns and industries. 2. On the trade map write our exports to and imports from Colombia.

68. Ecuador.—(LII.) This country is crossed by the Andes in two lofty ranges. What surface divisions do they make? Effect on climate? Both the eastern and western slopes are forested, also the northern part of the coast plain. Rubber, cinchona, ivory, and Brazil nuts are found. The warm lowlands produce cacao, sugar, and cotton. The mountain slopes yield coffee. The plateaus yield grain and fruits, but the cost of carrying them down to the coast towns by mules is so great that foodstuffs are imported. What minerals are found? Gold

is the only metal mined. The only important manufacture is Panama hats, in which the workmen are very expert.

These are made from a fiber obtained from the midrib of the leaf of the screw pine. The fiber is very fine and must be plaited under water, or where the air is moist. The hat is woven in one circular piece and then pressed into any desired shape. They command a high price, ranging from five to fifty dollars each. The name comes from the fact that these hats were first imported by way of the Isthmus of Panama.

Ecuador is the largest producer of cocoa, which forms three-fourths of the exports. It is exported mainly to France. Much goes also to Spain, Great Britain, and the United States. Rubber, coffee, ivory, and hides are other leading exports. Woolen and cotton goods are the largest imports from Europe. From the United States Ecuador imports lard, cottons, flour, iron and steel, and kerosene.

Transportation is poorly provided for. A railroad is about half completed from Guayaquil to Quito. Besides this there are only bridle paths. Trade with the United States goes by way of the Panama Railway; with other countries, by steamer around Cape Horn.

Written Work.—1. Write on trade map our exports to Ecuador and our imports from that country. 2. Write a paragraph on the natural divisions and products of Ecuador.

69. The Cacao Tree grows best in a warm, moist climate, on low grounds where the soil is rich and deep. The region near Guayaquil has upwards of 40,000,000 of cacao trees. The Island of St. Thomas in the Gulf of Guinea, the Venezuela coast, Ceylon, and Java rank next in the production of cacao.

The tree is an evergreen with smooth leaves, growing to a height of eighteen feet. The fruit is a fleshy pod, thicker at the center than at the ends. It has five cells, each of which contains from twenty to thirty thick, almond-shaped seeds. The preparation for market consists in removing the seeds from the pods and burying them in green leaves, where they are allowed to ferment for a week. The heat of fermentation removes a bitter taste and prevents the seeds from sprouting. They are then dried and rubbed to remove any gummy matter which adheres to them. The seed coats when removed are "cocoa shells" and are used for making the drink called "cocoa." The beans contain an oil which is extracted by heating and forms a nutritious food known as "cocoa butter." When the beans are ground to a dry powder we have cocoa. When ground with sugar and pressed into cakes the product is called "chocolate."

All forms of cocoa are valuable foods and much used in tropical countries. Spain, France, Portugal, and the United States are also large consumers.

Written Work.—1. On outline map of the world shade all the regions producing cacao. 2. Write on the uses of the products of the cacao-tree.

70. Peru.—(Review LIII.) What is the size and population of Peru? Density of population? Half the people are native Indians. Describe the climate. Why is the coast region rainless? Cotton, coffee, and sugar are cultivated with the help of irrigation. What have you learned about Peruvian cotton (10)? The products of the plateaus and forests resemble those of Ecuador. What do you know of the mines of Peru? The entire products of the mines are worth many millions of dollars annually. Most metals are exported in the ore, to be smelted and refined in foreign countries. What does this teach us of the civilization of the Peruvians? What are the important railroads of Peru (see map of South America)? They connect the seaport towns with the mines and farming centers of the interior.

A plant peculiar to this part of South America is the coca shrub. A medicine, cocaine, much used at present in surgical operations, is made

from it and is exported. What animal furnishes an article of export? Guano is gathered on the Island of Lobos near the coast. Straw hats, cotton and woolen cloth, boots and shoes, and other common necessities are manufactured at Lima and Cuzco.

The native Indians of the Amazon Valley ship large quantities of rubber down the river from Iquitos. Cinchona, dyes, and medicinal plants are also gathered in the forests.

Peru has her largest trade with Great Britain and Germany, the United States standing third. Find what part of Peru's trade we have (Table VI). Her chief exports to this country are sugar, cotton, coca, wool, hides, and guano. She imports from the United States machinery, lumber, flour, wagons, cars, and kerosene.

Written Work.—1. On an outline map of Peru locate the chief cities and the railroads. 2. On trade map write our exports to Peru and our imports from that country.

71. Bolivia has fertile prairies in the southeast and dense forests in the north. Describe the highland region (LIII). By what two river systems may Bolivian commerce reach the sea? By what two railroads? Besides these, pack-trains of mules and llamas carry ores to the railway in Argentina whence they are exported by way of Buenos Aires. Mining is the leading industry. What metals are found? Borax is gathered from the Ascotán lakes in the southwest, and some gold, bismuth, and antimony are found.

The plateau regions, where three-fourths of the people live, produce corn, wheat, barley, fruits, and vegetables. The country about Tarija is a very garden, and noted for large crops. From the forests of the North increasing amounts of rubber, cinchona bark, and coca are sent down the Amazon to Para, and stock-raising is increasing on the eastern plains. The Bolivians are few in number and poor, and English and German money, skill, and machinery carry on the mining operations. Trade is hindered by high freights, and consists in the exchange of ores and metals for cotton and woolen goods, machinery, and hardware. No goods from Bolivia reach the United States, except through other countries, and we sell her, directly only, a small amount of cotton cloth and hardware.

Written Work.—1. Write a paragraph on the trade routes of Bolivia. 2. On outline map locate the cities and productions.

72. Chile is, next to Argentina, the most progressive of South American countries. What minerals are produced? Copper is the chief metal. Give rank of Chile in copper production (Fig. 13). Gold, sulphur, silver, guano, and coal are found. But nitrate of soda is the most valuable mineral deposit. What do you know of this (LIII)?

The nitrate deposits lie near the surface in the desert of Atacama. It is broken up by blasts introduced below the beds. It is refined by dissolving the crude rock in hot water from which the pure nitrate of soda crystallizes in cooling. Iodine, a drug used in medicine and photography, is obtained from the liquid left after crystallization.

The long, narrow valley of Central Chile is one of the most fertile regions in the world, and supports three-fourths of the entire population. Large numbers of horses, cattle, pigs, sheep, and goats are raised. The grains of the temperate zones, fruits, and vegetables flourish. Southern Chile has large forests, and vehicles and furniture are made. What other manufactures has Chile (LIII, 11)? Chile has fine highways, nearly 3,000 miles of railroads, and about 700 miles of navigable rivers. How does she rank in foreign trade (Table V)? How does the balance of trade stand?

Our imports from Chile are mainly nitrate of soda, wool, copper, and lead. The nitrate is used in making fertilizers and chemicals, such as niter and washing and baking soda. Gunpowder is made from niter, sulphur, and charcoal. How do our imports compare in value with our exports? These

are chiefly cottons, kerosene, iron and steel goods, lumber, farming tools, and machinery.

Written Work.—1. Make a sketch map of Chile and locate the railroads, sea-ports, and cities; write a statement about the trade of each port. 2. On trade map write our exports to Chile and our imports from that country.

73. Argentina is the chief farming and stock-raising country of South America. It has the most railroads and the largest commerce. In manufactures it stands next to Brazil. How does the lack of coal and water-power affect them? Describe the surface (LIV). Climate. The rainfall, except in the north-east, is light, much of the soil requiring irrigation. Explain this: How does Argentina rank in sheep (Fig. 36)? Cattle (Fig. 9)? Wool (Fig. 40)? Wheat (Fig. 2)?

About 30,000,000 cattle and 75,000,000 sheep are pastured on the pampas. The public lands are sold in large tracts to the ranchmen, who divide it into sections and fence it with wire. A few men can thus take care of large herds. The ranch owners are mostly Englishmen and Scotchmen. The best cows are kept for dairy purposes. The best beef cattle are shipped alive

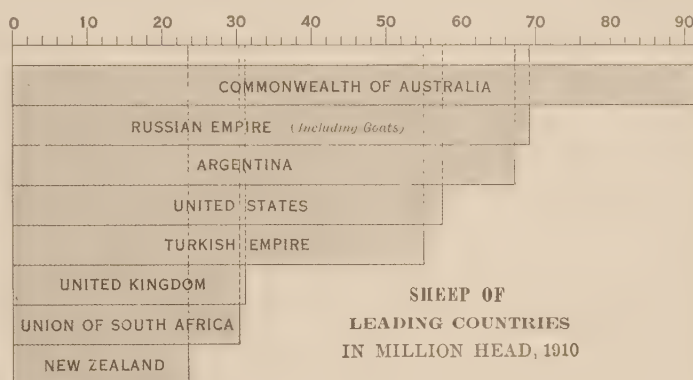


FIG. 36.

to Europe. Fat sheep and lambs are also sent in the same way. But the live animals are only equal to one-sixteenth of the frozen and dried beef exported. The largest refrigerating plant for meat in the world is at Buenos Aires. A million carcasses of beef and three million of sheep are frozen and exported annually.

Wheat, corn, flax, and sugar are the chief farm crops. The production of grain increases and stock-raising diminishes as the population grows more numerous. Argentina has mines and forests in the far north where railroads have not yet reached. A small amount only of gold, silver, and copper is mined, and some cabinet wood is exported. Manufactures are mainly grain sacks, leather, textiles, and hats. Structural iron is made and some sugar is refined.

Argentina imports textiles, clothing, pottery, glass, and machinery from Great Britain and Germany. From the United States she receives farming machinery, oil, lumber, twine, wire, railroad supplies, tools, and hardware. Next to animal products and wheat, flaxseed and sugar are important exports. We buy of Argentina raw wool, hides, goatskins, and the bones, horns, and hoofs of the cattle slaughtered. What use do we make of these things?

The Falkland Islands belong to Great Britain. They produce a nutritious grass for cattle called "tussac grass." Cattle, horses, and sheep are extensively raised. The exports are wool, hides, skins, and leather. These are exchanged with the mother country for manufactured goods.

Written Work.—1. On outline map of Argentina place the navigable rivers, railroads, important cities and ports. 2. Make a production map locating leading products and industries. 3. On outline trade map fill in our exports to and our imports from Argentina.

74. Uruguay and Paraguay.—(Review LIV.) *Uruguay* is a level, fertile plain with abundant navigable waterways. Grazing is the chief industry, though agriculture is increasing. Wheat, flax, and the vine are cultivated. The wool product exceeds a hundred million pounds, and is the largest export. Seven-eighths the total exports are animal products. What is their value (Table VI)? What is the value of the imports? We sell Uruguay oil, naval stores, cotton cloth, and many small wares.

A German company has an immense establishment at Fray Bentos for the manufacture of beef extract. "Jerked" beef is the largest meat export, but salted and refrigerated beef and mutton are increasing in amount. The flour and grain export is in value next to that of animal products.

There are no manufactures of importance, and Uruguay imports various foods, tobacco, textiles, clothing, and iron and steel goods. From the United States she imports farm tools, oil, cloth, and lumber, and sells to us the same products that we receive from Argentina. What is their value?

Paraguay is a rich farming and fruit-growing region. Describe its transportation facilities; its soil; climate; products. What are the exports? Tobacco, manioc, sugar, and oranges are leading products.

Maté is a product peculiar to Paraguay. The shrub from which the leaves are obtained resembles a small orange tree. The leaves are roasted and pounded into powder. This is sewed up in hides and exported to the neighboring countries to the annual value of about a million dollars.

Our exports to Paraguay consist of hardware, kerosene, and canvas; our imports are hides and vegetable extracts. There is no line of railway completed to Montevideo or Buenos Aires but goods are sent part way by water. The manufactures of Paraguay are leather, furniture, cigars, and earthenware. Spirits are distilled from the juice of the sugar cane. England furnishes half the imports. What is our share of them?

Written Work.—1. On an outline map show the rivers, railroads, and towns of Paraguay and Uruguay. 2. Write on trade map our exports to and our imports from these countries. 3. On outline map of the world shade the chief cattle-raising countries.

ASIA.

75. Physical Features.—(Review Map Studies and LXIV.) How does Asia compare in area and number of inhabitants with the other continents? The interior is so elevated and so far from the sea that it receives too little rain to grow crops. A large part of it is a desert and the rest thinly settled. Describe the northern part of the continent. The bulk of the people live on the eastern and southern coasts, which receive abundant moisture from the monsoons (XI, 5). These coasts are deeply indented by numerous seas which afford inland waterways for ships and have led to an extensive coasting trade. Chinese junks throng these seas and ascend far up the rivers. The valleys along these rivers are the most fertile parts of Asia and furnish nearly all the vegetable products that the people of Asia have to sell. Locate eight of the river valleys of Asia and name some of the products of each. (Physical Map.) The plateaus and desert regions of the interior form about a third of the continent.

These are not only unproductive, but they separate the productive regions and act as barriers to commerce. Name three of the deserts; four of the plateaus.

The land of Central and Northern Asia slopes gently toward the Arctic Ocean. But as this ocean and the rivers emptying into it are blocked with ice during the greater part of the year, there is no outlet for trade in this direction. Much of the dry interior is basin-shaped. How does this affect the drainage? What do you know of the salt lakes of this region (LXIV, 3)?

The chief mineral regions are among the Caucasus, Ural, Altai, and Pelling mountains. Locate each of these ranges and name the minerals found in each.

Where are the "Steppes" of Asia? What do they produce (LXIV)? What are the Monsoons (LXV)? What are the disadvantages of a wet and a dry season? How does the direction of mountains affect the climate of Central and Southern Asia? The vast chains of continental islands bordering Asia are a part of that continent and of equal importance with the mainland. Name some of these islands. They are very productive and are more progressive than many of the countries of the mainland.

Written Work.—On outline map of Asia draw the rivers and mountain ranges and write the leading productions of each country.

76. People, Industries, Commerce.—(Review LXV.) Asia is the home of the oldest civilized nations of the world. They have, however, for many centuries been unprogressive. This has been due in part to the physical barriers which separate them from each other and from other continents, and in part to their observance of ancient customs and religions. What races are found in Asia? What religions prevail? Which three nations lead in civilization in Asia? Industries are not highly advanced among the people of Asia. Nine-tenths of them are farmers. Methods of cultivation and farming utensils are rude and clumsy, except in some of the European colonies where modern methods have been introduced.

China, India, and Western Asia have since the earliest times been famous for the manufacture of silk and woolen goods, carpets, rugs, and a great variety of metal work. But their methods of hand-manufacture have been so far surpassed by modern machinery that the nations of Asia instead of selling textiles to Europe are now buying them from that continent and from America.

In spite of their methods of production and difficulties of transportation Asia has always had an extensive inland and foreign commerce. What do you know of this commerce (LXVI, 4; LXIX, 3; LX, 1; LXXI, 5)? What about methods of transportation? How has transportation been improved in recent times? What railroads now connect Asia with Europe? Trace the route from Hankau to St. Petersburg; from Central Asia to St. Petersburg. India has a very extensive railroad system with more miles of track than any other country of Asia. Why does the foreign trade of countries having railroads exceed that of countries having none?

Written Work.—1. Make a list of the countries of Asia, of the races inhabiting each, of the religions of each and the leading occupations in each.

77. China and dependencies.—(Review LXVI.) Of what does China consist? Compare it with the United States in area and population. What is the character of the Chinese? How do they rank in education? Describe the surface, minerals, occupations, and productions. What are the two great staple products and exports? Compare China with the other countries in the extent of its coal fields; in the production of coal (Fig. 11). China has many roads traversing the country in every direction, but they are in such bad condition that wheelbarrows, carts, and mules are the only means of transportation that can

be used. About 5,000 miles of railway are now in operation, and telegraph lines extend from Peking into every part of the country. A large trade is carried on between China proper and the provinces of Tibet, Mongolia, and Sin-Kiang; tea, rice, beans, and manufactured goods are exchanged for metals, animals, silk, wool, and cotton. What do you know of the caravan trade?

What are the leading manufactures of China? For what inventions are they famous? Owing to foreign competition the Chinese have been forced to make use of modern machinery. Cotton mills are now in operation at Canton and Shanghai; machines for reeling silk (silk filatures) are used in many places, and ovens for curing tea are taking the place of hand labor. Near Hankau is a rolling mill which turns out 300 steel rails per day. Flour and rice mills are taking the place of the old hand machinery for grinding.

What do you know of the foreign trade of China? Forty-three ports now admit foreign ships. Commercial nations have been eager to trade with China because her large population furnishes a market for low-priced goods, and the development of her natural resources will supply the people with money to buy them. Silk and tea are the chief exports from China, but she also sells raw cotton, wool, beans, hides and skins, opium, straw matting, and paper. Each of these products comes to this country. Her largest purchases from us are cotton cloths, kerosene, tobacco, and lumber. Great Britain has the largest share of the Chinese trade. What part of China's exports do we buy? What part of her imports do we sell to her (Table VI)? Russia buys about one-half the tea exported. By what routes does it go (LXVI)? Fully one-half the total exports and imports of the Empire are handled by British merchants through the port of Hong-Kong. This is the British crown colony at the mouth of the Canton River. It includes a small island and part of the mainland. Hong-Kong is the most important port in the East and one of the greatest in the world. It is a naval and coaling station and a free port, no duties being collected on goods passing through it.

Written Work.—1. On outline map of Asia write the leading productions of China and locate the chief cities. 2. On a similar map write our exports to and our imports from China.

78. Silk and Tea were first cultivated in China. The art of weaving silk is said to have been known there 4,500 years ago. Since the worm which spins the fiber feeds only upon the leaves of the mulberry tree, silk culture is confined to those places where the mulberry grows. The worms are hatched and fed under cover, as cold or wet weather causes them to spin a poor quality of fiber. They attain their full size in about six weeks and at once begin to spin. The worm coils the fiber about its body until a complete covering, or cocoon, is formed. The cocoons are plunged into hot water to kill the pupa which would otherwise eat its way out and spoil the cocoon.

In reeling the fiber, the cocoons are placed in warm water to dissolve the gummy substance of the outer covering. The fibers of several cocoons are then united until a thread of sufficient strength is formed. This is wound into hanks or skeins and in this form is known as "raw silk." A single cocoon furnishes about a thousand yards of fiber. Silk culture requires much labor and skill. Hence silk is produced only in those countries where the population is dense and labor cheap. Those who engage in this work are carefully trained to it from childhood. What countries produce silk? What countries import and manufacture it? Where do we get our supply? Which of our cities manufacture it?

Tea consists of the dried leaves of the tea plant, a hardy shrub growing from ten to twenty feet in height. It is a native of Asia and has been under cultivation in China for 1,500

years. The quality of tea depends upon the age of the leaves when picked and the manner of curing. The old withered leaves and small twigs make the cheapest variety. The difference between "black" and "green" teas comes from the manner of curing. In this process the leaves are first dried slightly and then rolled and heated to cause fermentation. If now they are dried quickly in ovens the product is green tea; but if dried slowly or in the sun the leaves turn black. During the drying the leaves are rolled or twisted and curled, giving them the appearance that is so familiar. What countries produce tea (index)? What countries import tea most largely (index)?

Written Work.—1. On outline map of the world color the tea-growing regions. 2. On a similar map color the silk producing countries.

79. British India.—(Review LXIX.) What are the three natural divisions of India? How does it compare with the United States in size? In population? What do you know of the character of the people? Their manufactures? Their civilization? What are the chief agricultural products? Mineral products? Nine-tenths of the people are farmers. The Ganges valley is the most productive section, furnishing rice, jute, and opium for export. Cotton flourishes in the rich black soil of the Dekkan. Large crops of tea are produced in the uplands of the North. Wheat and millet are raised everywhere. Cotton, woolen, jute, and paper goods are the most important modern manufactures. The Indian cotton has too short a staple to rival the American upland in the world's markets and is made into cloth mainly at Bombay, for the home trade. Jute is made into coarse cloth (gunny cloth) and bags for wrapping bales of cotton and wool and for holding grain and seed. Calcutta is the center of the jute industries. Gunny cloth and bags are the largest export to the United States. How has internal commerce been rapidly developed in India (LXIX, 4)? The rainfall of India is very uncertain in large sections. Over 3,000 square miles of land are irrigated. Yet crops often fail and famines occur. What is the value of India's foreign trade (Table VI)? Why is our share of it so small—only one-sixteenth of the imports?

The food products of India proper are mostly consumed at home. Wheat, however, is a large export, rice and millet being the staple grain foods. The teas of India and Ceylon, owing to cheaper methods of production, have largely driven Chinese teas out of European markets. The rivalry of the blue dyes made from coal tar has made the production of indigo less profitable. The cottons of India have a large sale in China and other parts of Asia. Where is the opium sold (LXIX)? Describe the trade with the United States. Where is tin obtained? Spices? There is no trade in animal products, as the religion of the people forbids their use. Milk is used, and the hides are exported or made into leather, but the fat and flesh are pollution to the Brahman. Cotton cloth and kerosene are our chief exports to India. Great Britain, China and Germany have the most of the Indian trade.

Written Work.—1. On outline map of India draw the Indus and Ganges Rivers and write the chief productions of the country. 2. Locate the leading cities and tell for what each is noted. 3. On outline map of Asia write our exports to India and our imports from that country.

80. Japan.—(Review LXVII.) Of what does Japan consist? Describe the coast; the surface; the climate. Compare with Great Britain in size and population. What is the character of the people? What are the farm products? The minerals? What do you know of the productions and trade of Formosa? Of Korea? The Japanese are famous sailors. They have one of the best navies in the world. How do they rank in shipping

(Fig. 21)? Japan, like China, is a large exporter of silk, tea, rice, paper lacquer goods, and chinaware; but, unlike China, she is rapidly coming to manufacture the greater part of the goods needed for home use. Cannon, small arms, and steel ships are some of the larger products. But textile goods, boots and shoes, clothing, glass, hardware, scientific instruments, clocks, watches, medicines, and bicycles are only a few of the multitude of articles now produced by the "Yankees of the East." A thorough system of schools and colleges provides for education, and thousands of young men and women are sent abroad to learn the best there is in the institutions of foreign countries.

The commerce of Japan has increased fivefold in twenty years. What is the value of her exports? Of her imports? What is the share of the United States in each? Raw cotton from America is her largest import and raw silk sold to America is the largest export.

Japan manufactures the cotton into yarn and cheap grades of cloth for trade with China and Southern Asia, in return for which she buys rice, sugar, tobacco, and beans. Copper is largely exported to Great Britain and the United States. What is the rank of Japan in copper (Fig. 13)? Japan is poor in other minerals. She imports iron and steel goods from Germany, Great Britain, and the United States; locomotives, railroad supplies, machinery, and telegraphic and other electrical apparatus are the chief items. She also imports from this country kerosene, flour, paraffin, and tobacco. Besides silk, our imports from Japan are tea, matting, camphor, rice, copper, and chinaware.

Written Work.—1. On outline map of Asia locate the chief ports, cities and productions of Japan. 2. On a similar map write our imports from Japan and our exports to that country.

81. Indo-China.—(LXVIII.) What does Indo-China include? Which part belongs to England? To France? Which is independent? What is the population? What are the agricultural products? The forest products? Gamboge (physical map) is the hardened sap of a tree and makes a yellow dye. The civilization of the countries of Indo-China has not advanced beyond the agricultural stage. Farming, fishing, and lumbering are the leading occupations. Rice is the only export of importance. Burma, Siam, and Cochinchina are the largest rice exporting countries in the world. Their product is sold mainly to France, China, and Japan. The teakwood forests along the Menam River and the rubber groves along the Salween furnish the second largest export. Pepper, spices, sugar, cotton, and tobacco are also exported. The Malay States lead in the production of tin. This is shipped from Singapore, the chief tin market in the world, and next to Hongkong the most important seaport in Asia. Its exports are valued at \$300,000,000 annually and includes opiums, spices, woods, and gambier, a vegetable extract used in tanning. Rice is the largest import of Singapore and is carried to many parts of the world. Cotton, tobacco, fish, coral, and petroleum are also large imports. All these goods are re-exported. The United States imports tin, hides, spices, gambier, shellac, and indigo from Indo-China and exports to that part of the world kerosene, cottons, machinery, and tobacco.

Written Work.—1. On outline map of Indo-China locate the chief cities, rivers and products. 2. On a similar map write our exports to and our imports from that country.

82. Russian Asia.—The Russian possessions include nearly half the continent of Asia. (Review LXXI, 4-7.) Describe the northern third of Siberia (LXIV, 2). Fossil ivory is the only product. What two products are obtained in the central third?

Immense pine forests extend nearly across the continent. They are not yet used for lumber, but are visited only by hunters in search of fur-bearing animals. Southern Siberia contains the great grain and stock-raising regions. Large crops of wheat, rye, and oats are grown. What animals are raised? What minerals are mined in Siberia? Little attention is paid to any metal but gold. Two-thirds of Russia's gold output comes from Siberia. What is its value (Fig. 15)? Where is Trans-Caucasia? It produces all of Russia's petroleum. How does it rank in this product (Fig. 12)? The oil is pumped from deep wells near Baku. Nearly the whole population of that vicinity are engaged in preparing petroleum for market. What are the agricultural products of Trans-Caucasia? It supplies some cotton and much raw silk for the Moscow factories. The people are skilled manufacturers of carpets, silks, and metal goods. What is the situation of Russian Turkestan? It furnished about one and a half millions bales of cotton annually for Russia's great factories at Lodz, Warsaw, and Moscow. Its farm industries depend upon irrigation. What are its chief cities? For what is Bokhara noted? Khiva, Samarcand, Kokan, and Bokhara have long been famous centers for caravan trade with the rest of Asia and with Europe. Manufactures in Russian Asia are not yet of great extent, but they are increasing so rapidly that it is thought they will soon supply the needs of the country. Since the opening of the Trans-Siberian railway several millions of Russians have emigrated from Europe to Asia, and have become large consumers of Russia's manufactured goods, exchanging for them their grain, cattle, cotton, wool, and minerals. So high a duty is placed on foreign goods that the people are obliged to buy most things of Russia. What goods do we sell to Russia? What do we buy of her (Tables III and IV)?

Domestic trade has been greatly helped by improved transportations. Cotton was formerly carried from Ferghana to Orenburg by caravan, but now a railroad has been completed along that route. Trace the route from Bokhara to Batum; from Dalny to St. Petersburg. Internal trade is helped greatly by navigation on the Black and Caspian Seas and on the Volga River. The Ob and the Irtysh are navigable nearly to their sources, and are connected by canal with the Yenisei. This secures water communication with Lake Baikal. Caravans from China connect with this route at Maimatchin and Kiahta. What do they carry (LXVI, 4)? Tomsk and Irkutsk are the most important manufacturing cities in Siberia. Flour, leather, and articles of wood are made. Vladivostok is the chief port on the Pacific and has much trade with Europe, Japan, Korea, and the United States. We import squirrel skins and other furs and sell farm tools, flour, building materials, and steel goods.

Written Work.—1. On outline map of Asia write the leading productions of Russian Asia; draw the railroads and name the important towns along the routes. 2. On trade map write our exports to Siberia and our imports from that country.

83. Persia and Afghanistan.—Persia lies in the western part of the high tableland of Central Asia. The surface consists of rugged mountains and salt deserts with many fertile valleys and plains. There is little rain, but where the mountain streams can be used for irrigation, fine crops of wheat, poppies, cotton, tobacco, and fruits (LXX, 3) are grown. How is the water obtained (LXX, 2)? What do you know of the climate? The dates of Persia are noted for excellence, and the rose gardens of Shiraz furnish the most valuable of perfumes (LIX, 6). What minerals are found? Nearly all the turquoise in the world is found near Nishapur. The mines of iron, lead, copper, and tin are little worked because there is no means of trans-

porting the ore to foreign markets and no machinery for smelting it at home. Gold, salt, and petroleum are produced in small quantities. For what manufactures are the Persians noted? Carpets and rugs are made by hand in nearly every part of Persia. Each village has its peculiar patterns and no two rugs are made alike. A large carpet may take several years of labor to complete it. There are valuable pearl fisheries belonging to Great Britain near the Bahrein Islands in the Persian Gulf. Thousands of men are employed, and the annual product is worth more than \$1,000,000. What are the exports of Persia (LXX, 3)? Fruits, raw cotton and wool, silk, opium, rice, and carpets are the most valuable. Russia buys the cotton, wool, rice, and fruits, and England nearly all the rest of the exports.

These two countries are rivals for the Persian trade. There are no railroads in Persia, but goods are carried by carts and caravans from Teheran, Tabriz, and the interior trade centers to the Russian frontier on the north and to the ports on the Persian Gulf. What are the size and population of Persia? What is the value of its exports? Its imports? These consist mainly of cotton cloth, sugar, tea and hardware. Why has the United States no trade directly with Persia? How do we obtain Persian goods?

Afghanistan is a country of high mountains and deep valleys. (Review LXX.) Describe the people. The caravan routes. What famous passes does it contain? What countries do these connect? Afghanistan, like Persia, lies between Russian and British territory, and these countries are rivals for political and commercial control. What animals do the Afghans raise? Their agricultural products are fruits, grain, tobacco, and some drugs and spices. Trade is mainly with India. The Afghans sell their horses, cattle, hides, silk, tobacco, and spices and buy dyes, cottons, sugar, and tea.

Written Work.—On outline map locate the chief cities of Persia and Afghanistan and the leading productions of each country.

84. Asiatic Turkey and Arabia.—Of what does Asiatic Turkey consist (LXXI)? The peninsula lying between the Black and Mediterranean Seas long known as "Asia Minor" is now called "*Anatolia*." *Armenia* borders on Trans-Caucasia; *Syria* lies along the eastern shore of the Mediterranean. *Mesopotamia* is a name meaning "between the rivers," and is applied to the country lying between the Tigris and Euphrates rivers. In the mountainous region east of it and bordering on Persia is *Kurdistan*. The western part of *Arabia* is also a part of the Turkish Empire. What provinces does it contain? How is the rest of Arabia governed (LXX, 7)? All of these countries are located on an elevated tableland, and except along the coast there is too little rain for successful farming. Hence the main industry is stock-raising. In ancient times, this part of Asia, through careful irrigation, was cultivated like a garden and contained rich and powerful cities. Now, owing to wars and bad government, much of it is an unproductive desert.

What are the productions of Asiatic Turkey? The exports? What do you know of the sponge and coral fisheries? Smyrna and Beirut are the chief ports, but most of the trade goes through Constantinople, which is connected by railroad on the Asiatic side with the chief cities. Beirut, however, exports silk, tobacco and oranges to the countries of Europe. Rugs, carpets, raisins, figs, opium, and valonia (LIX, 3) come from Smyrna. Trebizond, on the Black Sea, is the terminus of caravans bringing fruits from Mesopotamia and Persia.

For what products is Arabia famous? It is the native land of the horse, the camel, and the goat. Aden is a British colony and a free port. Many goods are exchanged here. The United

States sends cotton cloth to Aden and buys goat and sheep skins, Mocha coffee, and ivory.

Written Work.—1. Make a list of the chief cities of Arabia and Asiatic Turkey and state an important fact about each. 2. On outline map of Asia locate these cities and write the leading productions of the above countries. 3. On the trade map of Asia already begun write our exports to these countries and our imports from them.

AFRICA.

85. Physical Features.—(Review Map Studies and LXXII.) What is said of the surface of Africa as a whole? Of the coast plain? The coast line is so regular that there is only one first-class natural harbor, that of Lourenço Marquez. Locate the deserts and describe the effect of each on climate. Where are the chief mountain ranges? How do they affect climate? The Atlas range arrests moisture from the Mediterranean Sea and makes the coast from Tunis to Morocco fertile. The low coast plain is moist, hot, and so unhealthy that much of it is uninhabitable for white people.

What is the cause of the Nile's overflow? What winds bring the rain to Abyssinia and the Lake regions? The Sahara or Great Desert extends from the Red Sea to the Atlantic Ocean. Describe its surface; inhabitants; oases.

This region lies in the path of the southeast trade winds, which have become heated by passing over the Arabian peninsula. They thus become drying winds, taking up moisture as they proceed. As there are no mountains in the Sahara high enough to cool these winds sufficiently to condense their moisture this entire region is left barren. The oases are due to the rainfall on the southern slopes of the Atlas Mountains which runs down into the desert and sinks below the surface. These underground waters reappear in lower places as springs, forming the fertile spots so necessary as halting places for travelers and caravans. The date-palm is made to flourish in the desert by planting it so deep that its roots can reach the underground waters.

The Sudan is a strip of rolling prairie land stretching nearly across the continent. Can you account for its rainfall? Describe its people and natural wealth. It is more elevated than the Sahara and is traversed by numerous ranges of low mountains.

Central Africa lies between 10° north and 10° south latitude. What do you know of its climate and vegetation? It has the most extensive forests in the world, covering an area one-third as large as the United States. Cotton, coffee, tropical fruit and grains, palm trees, and rubber vines are found everywhere. What of the animals, insects, and peoples?

South Africa lies partly in the temperate zone. Its climate is dry and healthy and more white people live here than in any other part of the continent. The surface is elevated, rising abruptly from the coast. It has rich mineral wealth, consisting of coal, iron, diamonds, and gold. The climate is suited to agriculture and stock-raising.

The Rivers of Africa with the exception of the Niger are marked by waterfalls and rapids where the central plateau joins the coast plain. One of these, Victoria Falls, is the grandest cataract in the world. How do these rapids and waterfalls affect the country's development? Why?

Written Work.—On outline map of Africa locate the mountains, rivers, deserts, and the chief products.

86. Industries and Trade.—Africa is of all the continents the least important as regards production and trade. This is due to the low state of civilization of the inhabitants, to their frequent wars and lack of settled government, and also to an

unfavorable climate and soil. The continent is now entirely divided up among the nations of Europe, only the barbarous kingdoms of Abyssinia and Morocco and the little Liberian Republic remaining independent. But only in Egypt, Algeria, and in South Africa has any real progress been made in reducing the natives to law and order, and in securing regular crops and avenues of trade. There is a fringe of European settlements along the eastern and western coasts where traders exchange cloth, knives, firearms, and rum for the oil and nuts of the palm, the gums, coffee, ivory, and other natural forms of wealth.

Experiments in farming are being made by the governments of Germany, France, and Great Britain to ascertain what crops may be most profitably grown, schools are maintained for the natives, roads are being built and capital is invested in various ways in attempts to develop profitable industries and trade. But so far these experiments have cost far more than has been realized from them. At present the chief wealth of Africa is derived from its mines, forests, and other sources of natural wealth. Gold and diamonds are the most important, but the vast mineral wealth of Africa has scarcely been touched. Coal, iron, and petroleum exist there in vast quantities. Why is there little use for them? The African forests cover a million of square miles and contain such valuable timber as teak, ebony, mahogany, redwood, and other hardwoods. Rubber trees and vines and the palm are found everywhere and are a great source of wealth. Trade is mainly carried by caravans of mules and camels and by trains of slaves. Railroads have been most largely built in Egypt and South Africa, although there are a few short lines along the coast at various points. The completion of the projected railroad from the Cape of Good Hope to Cairo will open up the most productive part of the continent to trade. The foreign trade of Africa is small as compared with its size, population, and rich natural resources.

Written Work.—1. On outline map of Africa draw the chief railroads and tell the advantages that will come from the "Cape to Cairo" road. 2. Write a paragraph describing the means of communication in Africa.

87. Foreign Control of Africa.—Twenty-five years ago Africa was known as "the Dark Continent." What did this mean? Now the entire region has been explored. What nations control it? Egypt and Northern Africa were among the earliest homes of man. What have you learned about these countries? What nations control these parts? For thousands of years they furnished grain for the people of Europe and Western Asia.

During the latter part of the 15th century Portuguese sailors began to make their way down the Western coast, until Diaz reached the Cape in 1486 and Da Gama rounded it, completing the voyage to India in 1497. Settlements were rapidly made along the coast, and trade in ivory, gold, and slaves began, for which the natives received cloth, knives, weapons, and, mainly, rum.

The Portuguese had found the Arabs in control of the African and Indian trade, and after many years of war drove them out. The Dutch afterwards expelled the Portuguese and later were themselves displaced by the English, who now hold the best part of the continent. France has entered Africa from the north and now owns the most of the Sahara and the Sudan and a large part of the Guinea coast. What provinces are held by Germany? Italy? Portugal? Which countries are independent? How is Egypt governed? What interests have the English there and how do they share in the government?

The great hindrances to the commercial development of Africa have been the lack of settled governments and roads and the existence of the slave trade. This last is forbidden by all European governments, but is extensively carried on by Arab traders.

In tropical Africa where there are no beasts of burden, goods must be

carried by men. The stronger Negro tribes raid the weaker ones, and carry off prisoners to sell to the traders, who use them to carry goods to the coast and then sell them again to other traders. Only the Turkish provinces allow slavery, but it is secretly practised in other places. The British and French have done most to improve the industrial condition of the people. Algeria, formerly a land of thieves, has a strong government and property is safe. About 2,000 miles of railroads have been built and excellent highways. The foreign trade amounts to nearly \$150,000,000. What France has done for Algeria, Great Britain has done for Egypt and South Africa. These three sections are the best developed parts of the continent. In all colonies of England, Germany, and France, successful attempts have been made to introduce suitable plants for cultivation. Coffee, cocoa, tobacco, cotton, sugar, tea, indigo, and rice are profitably raised in many places. In order that these industries may flourish, railroads or other means of transportation must be furnished to bring supplies to the farmer and to take away his goods. How does the coffee of Central Africa find its way to the seaboard (map)? What lines are found in Angola, Cape Colony, and German Southwest Africa? What is their purpose? Find six other lines and tell their use? The British have planned a railroad from Cape Town to Cairo. The north end now extends to Khartum and the south end has crossed the Zambezi by a fine bridge above Victoria Falls. How will this road help South and Central Africa? Elementary and industrial schools have been begun in most colonies to teach the natives. How will this be an advantage to the country owning the colony? Will it make government easier? Will it make the land more productive? So far the countries of Europe have spent far more on their colonies than they have received. May this become a profitable investment? Why?

Written Work.—Make a list of the colonies belonging to Great Britain, France, Germany, Portugal, Turkey, and Italy and tell two leading products of each.

88. Region of the Nile.—Egypt is made fertile by irrigation and by the overflow of the Nile (LXXIII). Describe the annual rise and fall of the river. The black mud spread over the land by its annual overflow has increased to scores of feet in thickness in the Delta and has changed the valley to a level plain; such a river valley is called a "flood plain." Great dams and storage reservoirs are built at different places to hold back the water for use during the dry season. The fertile land of Egypt is a little greater in area than the State of Vermont. Compare its population with that of Vermont. The climate of Egypt enables the farmer to grow two or three crops each year where the water supply is sufficient. Cotton, sugar, and rice are sown in March and harvested in October and November. These are the chief crops. In November, wheat, beans, and millet are planted and harvested in late spring. On the irrigated fields crops of vegetables are raised between the summer and winter crops. Tobacco is grown, but Turkish tobacco is imported for making the famous Egyptian cigarettes. This is the only manufacturing industry of importance and is almost entirely carried on at Cairo.

Sheep, goats, and camels are raised, but Egypt is a large importer of animal products. Rice is also imported, but wheat, corn and beans are sold to the countries of Europe. Cotton is the largest crop raised for export. How does it compare with that of the United States (Fig. 18)? Egyptian cotton is a long staple and the most of it is sold to Great Britain and the United States. The former country has half of Egypt's trade. With Germany and France she supplies Egypt with cloth, iron and steel, and various manufactures. Besides cotton, we buy from Egypt gum arabic and hides and sell to her flour, meat, lumber, iron and steel. What do you know of the caravan trade of Egypt (LXXIII, 4)? Where are the most railroads? The line to Khartum is to be extended to connect with the railroad from Cape Town. How far is this last road built? (See map.) How will its completion help trade in Egypt? What is the advantage of the line to Suakin? Describe the Suez Canal. Four thousand ships pass through this canal each year, more than half of which are British. What possessions of Great Britain

are reached by way of the Suez Canal? It has made Port Said the second seaport of Egypt. Which one ranks first?

The *Egyptian Sudan* is a great undeveloped region with a mixed population about one-fourth that of Egypt. It sells to Egypt rubber, gums, ivory, gold, ostrich feathers, hides and skins, and buys manufactured goods that are brought from the countries of Europe.

Written Work.—1. On outline map of Africa write the chief productions of Egypt. Locate the important railroads and cities. 2. On a similar map write our exports to Egypt and our imports from that country. 3. Write a paragraph on the Suez Canal.

89. The Barbary States.—(Review LXXIV.) What part of Africa do these states occupy? Which of them are fertile? How does the desert affect the climate of Tripoli and Barca? What is the source of their rainfall?

Tripoli and Bengazi are the termini of caravan routes from the Sudan. What products do they bring (LXXIV, 1)?

Algeria and Tunis are the most prosperous of the Barbary States. To what nation do they belong? How do they compare with France in area and population? Agriculture and herding are the chief occupations. There are large forests of cork-oak. Minerals of many kinds are found. Iron and zinc are the chief metals mined. The yield of phosphate rock is second only to that of the United States. What products does Algeria supply to Europe (LXXIV, 3)? Esparto grass grows in unlimited supply in the southern plateaus. It is sent to England and France for use in making paper, and with zinc ore and cork forms the most valuable export. Iron, hides, phosphate, flax, tobacco, grains, wine, and sheep are the other leading exports. Algeria and Tunis depend upon France for seven-eighths of their imports; these consist of cloth, coal, coffee, tea, and various manufactures. From other countries they import cattle, lumber, tobacco, and leather.

The United States has little share in their trade. Our whole trade with French Africa amounts to less than \$1,000,000. From Algeria we buy cork, fiber, and goat-skins and sell to her kerosene, tobacco, and farm tools. Market gardening is becoming the greatest industry of Algeria. Vegetables of every sort are raised. There are 3,000,000 of date palms on the Sahara oases and 10,000,000 olive trees on the mountain slopes, while the number of orange, lemon, and other tropical fruit trees is increasing. Transportation is well provided for by good wagon roads and railroads to the seaports connecting with swift steamships for the ports of Europe.

Morocco is a badly governed, barbarous country, and of little importance to commerce. Eggs are the chief export. What are the others (LXXIV, 2)? Its imports are cloth, coffee, sugar, tea, and firearms. Trade is chiefly with Great Britain. There are no means of communication except by messenger, and goods are carried by caravan.

Written Work.—1. On outline map of Africa write the chief products of the Barbary States. 2. Locate the leading towns and draw the chief caravan routes. 3. Write a paragraph on Algeria.

90. The Sahara, Sudan, and Central Africa.—What nation controls the *Sahara*? What do you know of its size, surface, people, and trade (LXXV, 1-6)? What is the chief occupation? How are the oases formed? How is salt obtained? Many of the oases yield an abundance of dates and grain. By removing the surface soil to a depth of ten feet the date palm is made to flourish, as its roots can reach the underground waters. Trace the routes of trade. What goods are exchanged? What is the

Sudan? What are its products? Describe the people (LXXV, 6-10). What are the occupations? Productions? Exports? Imports (LXXV, 4)? Gums and rubber are gathered in the forests. Rice, millet, and ground-nuts are cultivated. The ground-nut is really the pod of a plant which ripens underground. It yields a valuable oil and is an important export from the Sudan and West Africa.

Where is the *Belgian Kongo*? What can you say of its commerce? Of its productions and exports (LXXV, 10-12)? Describe the oil-palm. Coffee, cotton, manioc, cacao, and rice grow where introduced. The Belgian Kongo is now the chief source of ivory, the herds of elephants in other sections having been nearly destroyed. Describe the surface of Abyssinia (LXXIII, 10). The raising of cattle, sheep, and goats is the main industry. Coffee is the largest agricultural product; the plant grows wild, and Abyssinia is said to be its earliest home. Cotton, sugar, dates, and grapes flourish but are little cultivated. What minerals are found? Only gold is mined. Transportation is by means of animals. Harar is the chief trade center. A railroad connects this town with Jibuti. Coffee, gold, gums, and wax are exported. Cotton and woolen goods, cutlery, mirrors, and matches are the largest imports. American cottons to the value of \$1,000,000 are imported annually.

Written Work.—1. On outline map of Africa write the chief products of Central Africa, the Sahara, and the Sudan and locate the chief towns. 2. Write a paragraph describing the trade of these regions.

91. The Eastern Coast.—(Review LXXVIII.) Where is *Mozambique*? What are its leading products and exports? Rubber, ivory, gold, and other metals are now exported. This colony is controlled by three trading companies and trade is almost entirely with Portugal. The colony buys cotton cloth, metal goods, spirits, beer, and wine. What railroads has the colony? They connect with Pretoria, Bulawayo, and Salisbury. Where is German East Africa? It is a rich agricultural region. Cocoa-nuts, coffee, tobacco, rubber, cacao, sugar, tea, bananas, and corn are cultivated. Many cattle, sheep, and goats are raised by the natives. Various minerals are found, among which are coal, iron, copper, lead, agates, topaz, and tourmalin. Several short lines of railroad have been built. The exports are rubber, gutta percha, copra, ivory, and coffee; the imports are cotton cloth, rice, hardware, and iron. Trade is with British East Africa, Zanzibar, and with Germany.

The *Zanzibar Protectorate* consists of the islands of Zanzibar and Pemba and a strip of the mainland. Pemba produces nearly all the world's supply of cloves. Other exports are ivory and copra. For what is *Eritrea* noted? Considerable gold is found. What is obtained from *Somali* (LXXVIII, 6)? Cotton, rice, and fruits are imported.

Madagascar is the third largest island in the world. To what nation does it belong? It is very rich in metals, nearly all kinds being found. Gold is chiefly mined. Stock-raising and agriculture are the main occupations. About 3,000,000 cattle are kept. Rice, manioc, sugar, coffee, cotton, cacao, vanilla, and tobacco are grown. The mulberry has been introduced. Valuable forest products used in tanning, dyeing, and medicine are found. Silk and cotton are manufactured. Rubber is the leading export. Rafia, a fiber derived from a species of palm, is obtained there. Wax and ebony are also exported. Cotton cloth is the chief import. Rice, wine, metal goods, and flour are next in value among the imports. What do you know of Mauritius and Reunion Islands? How does Mauritius rank in sugar (Fig. 26)? The United States sells flour, cotton, tobacco, meats, iron and steel to the

colonies of the eastern coast but buys little of them except hides and skins, the raw products which they furnish going to the countries of Europe.

Written Work.—1. On outline map of Africa write the chief products of the countries named in this lesson and locate the chief towns. 2. Make a list of these countries with the exports and imports of each.

92. The Western Coast.—(Review LXXXVI.) What are the resources of the western coast? What are the British possessions? The French? The German? The Portuguese? What islands lie off the coast?

All the western colonies export palm oil and nuts, ground-nuts, kola nuts (used in medicine), copal, rubber, coffee, and ivory, and import cotton cloth, cutlery, hardware, firearms, and liquors. What is obtained from the Portuguese Islands? In all of these colonies industries and transportation are undeveloped. Experimental farming is carried on and roads are being built. Schools are conducted for the natives, in many of which instruction is given in the trades and agriculture.

Written Work.—1. On outline map of Africa color the colonies of the western coast belonging to the several nations and write their chief products. 2. Locate the capital of each.

93. South Africa.—This region lies between latitude 15° and 35° south. This is about as far from the equator as the West Indies; yet South Africa, owing to its elevation of 400 feet above sea level, has a temperate climate. What part of it belongs to Germany? To Portugal? The climate of the western half is dry, as the rain brought by the trade winds is cut off by the mountains. What British colonies are found in South Africa? What are the productions of the Cape of Good Hope? Of Basutoland? Of Natal? Of Rhodesia? Of the Orange Free State? Of the Transvaal? How is transportation provided for? What parts are reached by the railroads? What interior cities?

The export of gold exceeds that of all other products combined. How does South Africa rank in gold (Fig. 15). Diamonds are the second largest export. Ostrich feathers, the hair of the Angora goat (mohair), copper ore, hides, and wine are also important. About all these exports go to Great Britain. But considerable of the wool, mohair, diamonds, feathers, besides spices and oil from the eastern coast, come to the United States in British ships. We sell the South African colonies through the same channel bread-stuffs, machinery, provisions, rum, lumber, tobacco, kerosene, cotton cloth, leather goods, and fish. Our exports are more than thirty times as great as our imports. There is little manufacturing in South Africa because of the small number of white people living there. We have no trade with the German colonies.

Written Work.—1. On outline map of Africa write the chief productions of the colonies of South Africa and locate the leading towns. Draw the chief railroads. 2. On a trade map write our imports from South Africa and our exports to that region.

AUSTRALASIA AND OCEANIA

94. Australia.—(Review LXXIX, 1-12.) Compare with the United States in location, size and population. What do you know of the rivers? The lakes? The coast line is very regular. The warm, dry climate is very favorable to the sheep industry, in which Australia outranks all other countries. The basin shape of the continent allows the rainfall of the bordering mountains to run in underground channels to the interior. By boring Artesian wells these veins are tapped and a supply of fresh water is obtained for the sheep and cattle. How does Australia rank in sheep (Fig. 36)? In wool (Fig. 37)? Farming is carried

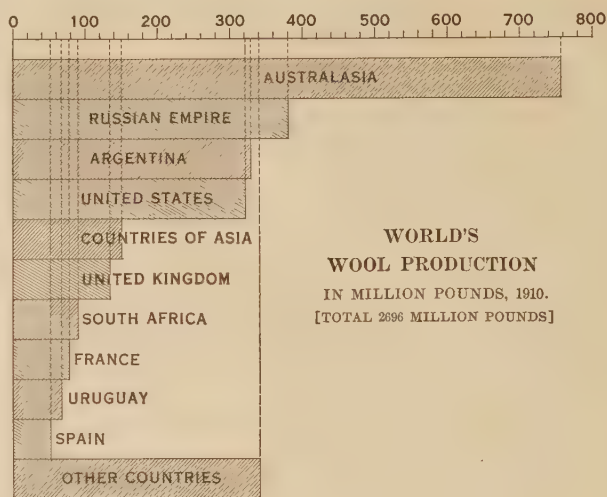


FIG. 37.

on wherever there is sufficient rain. Cotton, corn, sugar, wheat, and grapes are the leading agricultural products. Fresh grapes are sent to England on steamers having cold-storage rooms and reach that country in good condition. What minerals are found in Australia? How does it rank in gold (Fig. 15)? The average yield of gold is from \$85,000,000 to \$100,000,000, and over \$2,000,000,000 have been taken from the mines since 1851. Coal, copper, lead, silver, and tin are mined to the annual value of \$30,000,000. Butter-making and the preserving of beef and mutton by freezing and salting are the next largest industries. The manufactures of Australia are increasing, but do not supply the needs of the country either in quantity or quality. Farm machinery, wagons, leather, cloth, ships, flour, beer, and sugar are the chief articles. The gold, wool, copper, and other minerals, and much of the meat, butter, and fruit which Australia produces are exported; and this gives her a larger export trade in proportion to population than any other country in the world except New Zealand.

Judging from the number of railroads, which part of Australia is best developed? Nearly half the 15,000 miles of railways are in Victoria and New South Wales. Melbourne and Sydney are the chief ports and are connected by steamship lines with the great commercial countries.

Two-thirds of this trade is with Great Britain, which takes the wool, foods, and metals, and sells in return textiles, iron work, machinery, ships, chemicals, and various manufactures. Our import of Australian wool is very large, but most of it comes to us by way of Great Britain. Our other imports are hides, hemp, and rabbit-skins, which we use in making hats. We sell Australia more than twice as much as we buy of her. Our exports include a great variety of manufactured goods among which are flour, oil, steel, machinery, tobacco, lumber, paper, explosives, glass, soap, etc. What is the total export trade of Australia worth? The import trade? What is our share of it (Table VI)?

Written Work.—1. On outline map of Australia locate the chief products and cities. 2. On a similar map write our exports to Australia and our imports from that country.

95. New Zealand.—(Review LXXIX, 12.) What is the area of New Zealand? How many people are there to the square mile (Table VI)? Describe the soil; climate. What are the occupations? Exports? What peculiar products have the islands? New Zealand is one of the most prosperous of British

colonies. What is the value of her foreign trade and what is the trade balance in favor of New Zealand (Table VI)?

Sheep raising is the greatest industry, wool and frozen mutton forming over half the exports. Cattle are kept largely for dairying, the value of the butter and cheese export approaching \$10,000,000. Gold, silver, and coal are the chief minerals. Apples, grapes, and other fruits are extensively grown. New Zealand has 20,000 square miles of forests. One of the famous trees is the kauri pine which yields the kauri (cowrie) gum of commerce. By far the larger part of the gum is found buried in the ground in masses often weighing 100 pounds (LXXIX, 13). It is our chief import from New Zealand.

Manufactures are increasing rapidly in New Zealand and already supply most home needs.

They include iron and brass, building materials, furniture, cotton and woolen goods, boots and shoes, clothing and lumber. Textiles, clothing, steel, sugar, tea, tobacco, spirits, wine, and many small articles of manufacture are imported. Many of these go from the United States in British steamers by way of British ports. What is the value of New Zealand's exports? Imports? What is our share of each (Table VI)? What is the value of her exports per person?

Written Work.—1. Write a paragraph on the industries of New Zealand. 2. On outline map write the chief products and locate the leading cities and railroads. 3. On map of Oceania write our exports to and our imports from New Zealand.

96. The Dutch East Indies.—(Review Oceania, LXXX). Of what does Oceania consist? What nations control parts of Oceania? Of what does *Malaysia* consist? Melanesia? Polynesia? What races inhabit each of these sections? What are the productions of each of these groups? The Dutch Indies consist mainly of Java, Sumatra, Celebes, the Moluccas, parts of Borneo, and numerous small islands. How do they compare with Holland in size and population? Java and Madura are the most thickly settled and productive parts of the group. Rice, coffee, cotton, cocoa, corn, sugar, tobacco, cinchona bark, tea, and indigo are all raised in large quantities. In coffee Java ranks next to Brazil in the amount exported. Tobacco is the chief product and export of Sumatra. The Moluccas supply nearly all the nutmegs of commerce, besides pepper and other spices. What is obtained from Banka and Billiton? From Borneo? Among the products of Borneo are edible birds' nests, much prized by the Chinese for making delicacies, dammar, a resin used in making varnish, and beeswax obtained from the forests. Coal and petroleum are found in Java, Sumatra, and Borneo, but in small amounts.

There is regular steamship service with the countries of Europe and Asia. A large part of the land in the Dutch colonies is farmed under the direction of the government and the products are sold at auction in Amsterdam to Dutch merchants, who are the "middlemen" for the distribution of colonial products. So it happens that we buy Java coffee, Sumatra tobacco, and Banka tin in Holland. We also buy there the sugar, gums, and spices grown in the Dutch colonies. Our sales to Holland for export to the Colonies are mainly kerosene and machinery.

Written Work.—1. On outline map of Oceania color the Dutch possessions orange, naming each island or group and write their chief products. 2. On similar map locate the principal cities and write our exports to these islands and the goods which we buy of them.

97. Possessions of the United States.—Besides Australasia and the Dutch East Indies, there are over 600 island groups scattered over the vast Pacific Ocean. The most important of these are the Hawaiian and Philippine Islands, belonging to the United States. How did we obtain possession of each of these groups?

The Hawaiian Islands (XLIII a, 9-14) are, next to Cuba, our largest source of sugar. Describe the origin, climate, and products of these islands. The rich volcanic soil and mild climate make a great variety of products possible for Hawaii, although sugar receives the almost entire attention of farmers. Rice, coffee, tobacco, fruits, and vegetables are grown for home use. Our chief exports to Hawaii are breadstuffs, iron and steel goods, cottons, mineral oils, and provisions. What is the location of the islands with relation to Asia and the United States? What advantage is this to our country? We buy of Hawaii twice as much as we sell to her. Does this mean a loss to us?

The Philippines (XLIII a, 15-22) are the chief foreign possessions of the United States. What is their number? Area? Climate? Population? What is the chief cultivated plant? What are its uses? Does the United States raise fiber plants? For what do we use Manila hemp? What other products come from the Philippines?

These islands are undeveloped. They contain rich mineral wealth of gold, silver, copper, iron and coal. The forests contain valuable and useful timber, with a great variety of gums, rubber, gutta-percha, oils, and dyewoods. Sugar was formerly the most valuable product and may again become so. There are few manufactures in the Philippines and few staple foods are produced. Our exports are, therefore, largely cloths, foodstuffs, beer and liquors, petroleum, iron and steel goods, watches, bicycles, and a long list of small manufactured wares.

Samoa, Guam, and Wake Island are valuable only as coaling stations and as stations for our trans-Pacific cable.

Written Work.—1. On outline map of Oceania color the United States possessions blue, with the name of each and its chief products. 2. On the trade map write our exports to each island group and what we receive from it.

98. Foreign Possessions in Oceania.—Great Britain, France, and Germany control nearly all the 600 or more smaller groups of Pacific Islands. The eastern half of New Guinea, North Borneo with the provinces of Brunei and Sarawak, and the Fiji group are the most important British possessions. Only the last are well developed. The products comprise tropical fruits, valuable timber, gums, spices, and minerals. Coffee, tea, sugar, rice, tobacco, and corn are cultivated. Pearls, tortoise-shell, the down of the cotton tree, edible birds' nests, and sea-cucumbers, a kind of fish much prized for food in Eastern countries, are also found.

Of less importance are the Pitcairn, Gilbert, Phoenix, Lagoon and Solomon groups. Copra and other fruits, coffee, cocoa, arrowroot, and guano are some of the products. To all of these islands Great Britain sells meats, breadstuffs, cloth, hardware, kerosene and farming tools. Many of these goods come from the United States.

The chief French possessions are New Caledonia, New Hebrides, and Tahiti. The agricultural products are the same as those of the British groups. Copper, coal, and nickel are mined on New Caledonia and the rubber and mulberry trees have been introduced. Tahiti exports copra, vanilla, and mother-of-pearl.

Kaiser Wilhelm's Land in New Guinea, the Bismarck Archipelago, the Caroline, Marshall, and part of the Solomon and Samoan groups constitute the chief German possessions. These are very important to Germany as coaling and trading stations as well as for the value of their products. Nearly all are rich in the natural wealth of the tropics. The domestic animals have been introduced in New Guinea, and gold and valuable woods are exported.

Written Work.—Color the British possessions in Oceania red, the German yellow, and the French green, and write the leading production of each.

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GEOGRAPHY OF PENNSYLVANIA.

BY MARTIN G. BRUMBAUGH, PH.D.,

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PHYSICAL FEATURES.

Position, Extent, and Outline. The thirteen original states form an irregular arch. Pennsylvania is the central state of this arch; it was also, in 1789, the leading commercial state, and is, therefore, called the Keystone State. Its eastern boundary is the Delaware River. Its southern boundary west of Delaware is $39^{\circ} 43' N.$ This is the famous "Mason and Dixon's line." The southeastern boundary is a circular line drawn with a radius of 12 miles from New Castle, Delaware, as a center. The northern boundary is the parallel of $42^{\circ} N.$, except the western corner, which was purchased in 1792, thereby increasing the frontage on Lake Erie from 4 to 45 miles. This part is called the Triangle. The western boundary is $80^{\circ} 31' 36'' W.$ from Greenwich.

The area is 45,126 square miles. The state is in the form of a parallelogram. The greatest length is about 302 miles; the width, about 175 miles. The waters of the state cover about 294 square miles.

Surface. The great Appalachian mountain system traverses the state from northeast to southwest, in gently curved parallel ridges.

This mountain belt ranges from 35 to 80 miles in width, and is about 200 miles long, dividing the state into three clearly defined physical regions of unequal extent.

The southeastern part, lying in the Atlantic plain and the Piedmont plateau, has an undulating surface. Toward the mountain belt it becomes more hilly. The hills seldom exceed 500 feet in height. South Mountain, extending across this region from Northampton county to Franklin county, is a low, broken continuation of the Highland range of New York and New Jersey, and is itself continued in the Blue Ridge of Virginia. Its culminating point near the Maryland boundary is about 2000 feet above the Cumberland valley.

The middle part is the region of mountains and valleys. Here the Allegheny Mountains rise to a general altitude of 2000 to 2500 feet.

The famous Blue or Kittatinny Mountain crosses the state from Delaware Water Gap southwesterly to Franklin county. East of this range

is a long and fertile valley from 15 to 30 miles in width. It is part of the Great Valley of the Appalachian region. The ridges and mountain slopes are covered with forests. West of the Alleghenies are the Laurel Hill and Chestnut Ridge ranges.

The Cumberland valley and the Lebanon valley constitute part of the beautiful agricultural belt. Through these mountains break the great rivers of eastern Pennsylvania, forming many water gaps and giving to this region the name "Switzerland of America."

The third part is west and northwest of the mountain region, and includes nearly half the area of the state. The country is rolling and broken with short irregular ridges

and rounded knobs. The highest elevation, less than 1000 feet, is that of the Allegheny plateau. This plateau is cut in many places by deep and narrow watercourses. Here is the great forest region of Pennsylvania.

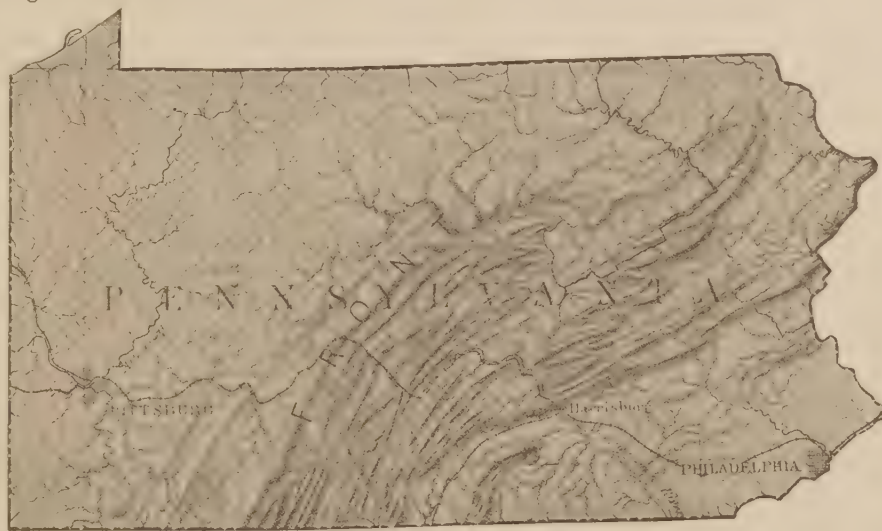
The removal of the timber has caused enough land to become barren to make a belt the length of the state and 17 miles wide. The surface is but slightly affected by glacial action. The highlands in the northwest corner,

and a section of the northeast from Potter county to Northampton county, were covered by the ice sheet.

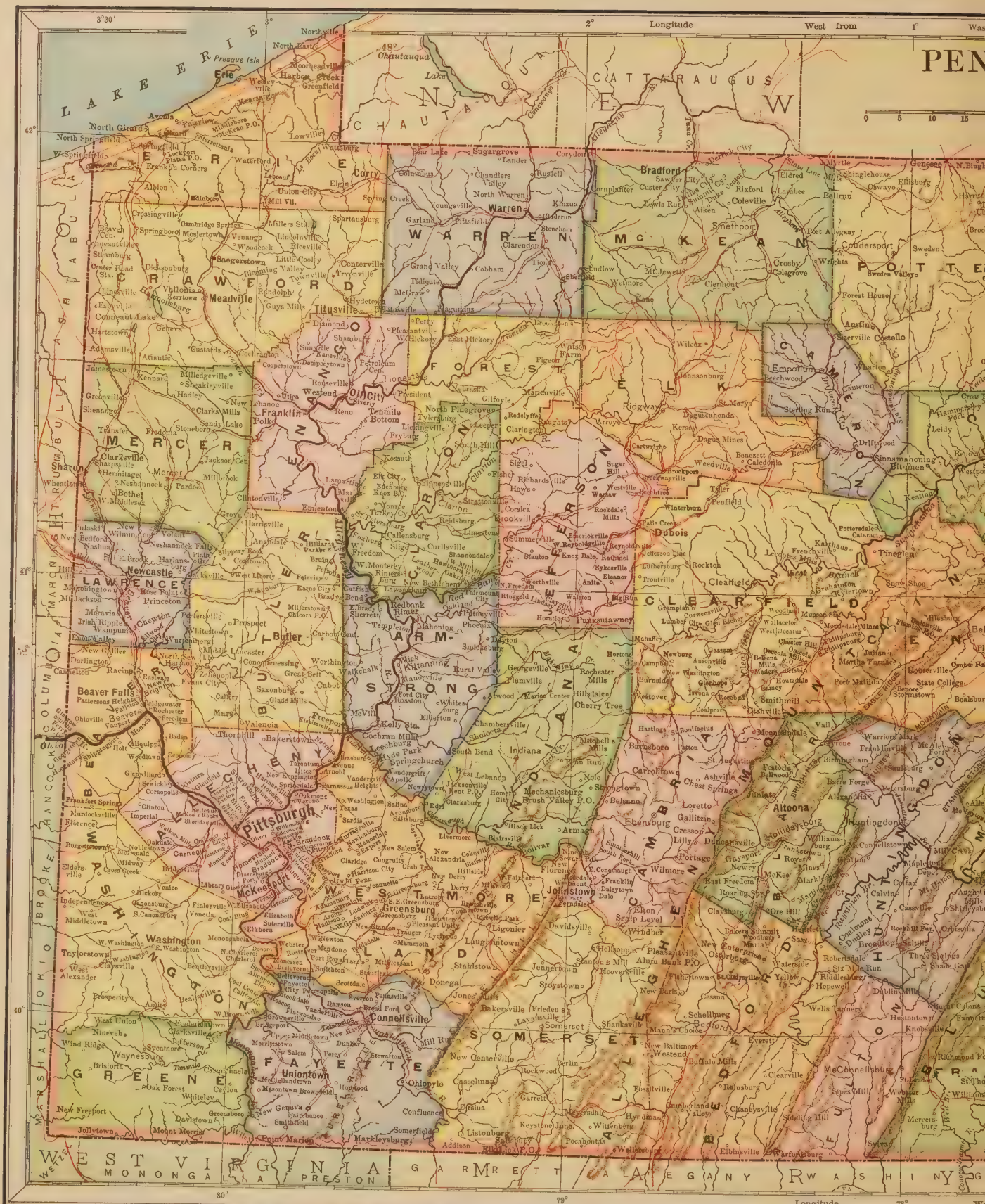
Drainage. The state is admirably drained by three great river systems — the Delaware, the Susquehanna, and the Ohio. The Delaware is navigable for ocean vessels to Philadelphia, and for river steamboats to the head of tide water at Trenton, New Jersey. The Lehigh and the Schuylkill are its chief tributaries. They rise in the anthracite coal regions, and their valleys are used as routes for the transportation of coal to the seaboard.

The Delaware Water Gap, in Monroe county, is a noted summer resort. There the river breaks through Kittatinny Mountain between walls more than 1200 feet high. The scenery is grandly beautiful.

The Susquehanna is a wide, shallow stream, over 400 miles in length. It drains the great central area of the



Physical Map of Pennsylvania.



state. The North Branch rises in New York. The West Branch rises in the Allegheny plateau and joins the North Branch at Northumberland.

Between York and Lancaster counties the Susquehanna passes into Maryland. It enters Chesapeake Bay. In the spring great quantities of lumber are floated down this river to the markets. The blue Juniata,



Delaware River near Easton.

the most picturesque of the rivers of the Keystone State, has its source in the Alleghenies and joins the Susquehanna above Duncannon. Its entire course is a succession of water gaps,—Jack's Narrows and Lewiston Narrows being most famous.

The Ohio is formed at Pittsburgh by the junction of the Allegheny and Monongahela. The Allegheny rises in Potter county, curves into New York and reenters the state in Warren county. The chief tributaries are the Clarion and the Kiskiminitas rivers and French Creek. The Monongahela enters the state from West Virginia. Its chief branch is the Youghiogheny. The Ohio is navigable throughout, and vast quantities of coal and other products are sent down this stream to the markets of the South.

CLIMATE AND RESOURCES.

The climate is variable but healthful. In the central highlands it is especially invigorating. The winters in the Allegheny plateau are long and severe. The eastern part has mild winters and a more equable climate. In the valleys of the central part the climate is mild, and conducive to luxuriant vegetation. The mean temperature in summer is about 72°; in winter, 32°. The annual rainfall is well distributed and averages about 40 inches.

The soil is everywhere fertile, and in the limestone regions of the southeastern part and of the Ohio valley it is exceptionally productive.

The southeastern limestone section is covered with the fine farms of the sturdy Germans who have made Pennsylvania the garden of the New World. The mountain slopes afford excellent pasturage. In the glacial belts the soil is called *till*, and it is excellent farm land. Lancaster, Chester, and Bucks are among the six richest counties in the United States.

Vegetation. The state was once covered with immense forests. They are still a great source of wealth. White pine and hemlock abound in the Allegheny plateau. Beech is especially abundant at the head waters of the Lehigh. Oak, chestnut, yellow pine, hickory, ash, birch, and other forest trees are found in great abundance. Maple trees yield large quantities of sugar.

The planting of trees is encouraged by the state. Arbor Day is observed semiannually in the schools. Many wild fruits and berries form important items of commerce.

Animals. The larger wild animals, once so numerous, are now almost extinct. Virginia deer and wild turkeys are still found, and rabbits, squirrels, and pheasants are common. Waterfowl are found along the streams. The rivers abound with fish. Above 70 species are used for food. By means of hatcheries, shad, black bass, trout, etc., are largely multiplied. Strict game laws are enforced.

Minerals. Pennsylvania leads all the states in her mineral products, and contributes about one fourth in value of the entire mineral product of the United States. The chief mineral products are coal, petroleum, and iron.

Coal. Half the coal of the mines comes from the mountains of Pennsylvania. Anthracite coal contains only about 10 per cent of volatile matter, and burns with little flame and great heat. It is found east of the Susquehanna. Bituminous coal contains from 25 to 40 per cent of volatile matter, and burns freely with much flame. It is found in every county north and west of the Allegheny Mountains, except Erie county.

About 235,000,000 tons of coal, more than half of which is anthracite, are mined yearly. The supply is practically inexhaustible. For 300 years these deposits can continue to supply coal at the present rate.

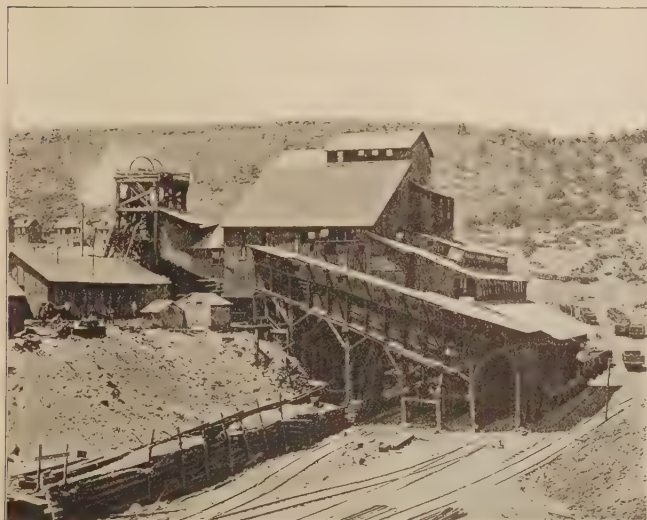
The anthracite beds vary from 40 to 60 feet in thickness and extend over vast areas in Dauphin, Northumberland, Columbia, Schuylkill, Carbon, Luzerne, Lackawanna, Sullivan, and Wyoming counties. In the bituminous fields the beds are from 3 to 15 feet in thickness. Much of this coal is converted into coke, useful in the smelting of ores and in various industries requiring a smokeless fire.



Susquehanna River near Falmouth.

East of the Allegheny range in the central part of the state is found a fine coal for manufacturing purposes. It is called semibituminous, because it contains less volatile matter than bituminous coal.

Petroleum or rock oil is found in a dozen counties in the valleys of the Allegheny and Monongahela. From most of the wells the oil is pumped. Occasionally a "gusher" is struck and the oil flows in great volume to the surface. The crude oil is piped to refineries and to the seaboard hundreds of miles away, whence it is exported to many foreign countries. The refineries convert the crude



Colliery near Shenandoah City.

oil into kerosene or coal oil for lighting purposes.

In 1858-59 near Titusville the first well was drilled. Soon thousands of barrels of oil were flowing daily and the "gold fever of '49" was almost equaled in the "oil fever of '60." The oil region was crowded with men eager to strike oil, cities sprang up, the section was made immensely rich, and still derives a large income from this great industry.

Natural Gas. In the oil region is found natural gas. It is piped to the leading cities and industrial centers and becomes a cheap and valuable fuel. The extravagant use of it for some years has resulted in a diminution of the supply. Its use has been a great stimulus to industries in the vicinity of Pittsburgh.

Iron. Pennsylvania, formerly the greatest producer of iron ore, now yields but a small part of the country's output. Among the mines still in operation, the Cornwall mine of magnetite ore is still producing abundantly. Nearly half of the pig iron made in the United States is the product of Pennsylvania furnaces, but the great part of the ore used is from the mines of the Lake Superior district.

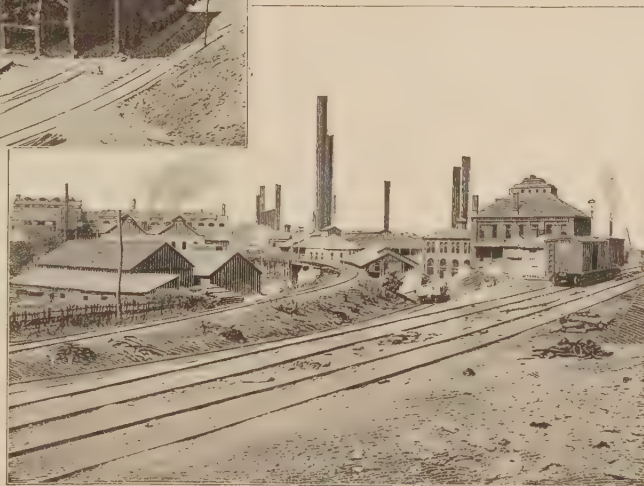
Other Minerals. Pennsylvania leads in the production of slate. Excellent building stone is abundant. Limestone suitable for Portland cement occurs, that in the Lehigh district being most largely used. Sandstone, trap rock, granite, and marble are found in various localities. Brick and fire clay, glass sand, feldspar, graphite, and natural cement are also found. Mineral waters are obtained from numerous springs.

INDUSTRIES.

Agriculture. Climate, rainfall, and soil combine to make this a great agricultural state. In the value of farms and their products few states in the Union surpass Pennsylvania. About one fifth of the population is engaged in agriculture. Hay, wheat, corn, oats, and potatoes are the leading crops. Tobacco, rye, and buckwheat are largely cultivated. Fruit culture, dairying, and stock-raising are profitable occupations. Sheep are raised, and wool is largely produced.

Mining. The mining interests are the most important. Pennsylvania not only far exceeds all other states in mineral productions, but also rivals the best mineral centers in Europe in the wealth of her products.

Manufactures. The unsurpassed water power and mineral resources of the state render it a very important center for manufacturing. Next to New York, Pennsylvania is the leading state of the Union in manufactured products.



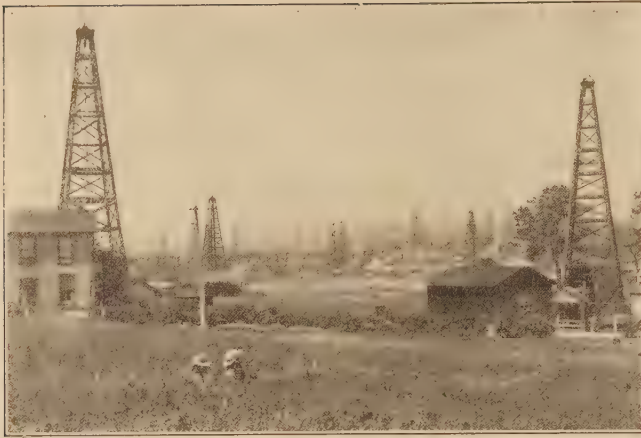
Steel Works near Braddock.

The state holds first rank in production of iron and steel, machinery, leather, glass, locomotives, and railroad cars. It supplies two thirds of the coke used in the country. Among its manufactures are woolen, silk, and cotton goods, printed matter, lumber, refined petroleum, packed meat, tobacco, hosiery and knit goods, beer, flour, refined sugar, clothing, boots and shoes, hats, carpets and rugs, furniture, tin plate, pottery, electrical machinery

and supplies, paper and wood pulp, cement, chemicals, distilled liquors, paint, butter and condensed milk, and carriages and wagons.

Lumbering. In the mountain forests about the head waters of the West Branch of the Susquehanna, and in other less extensive regions, lumbering is an important industry. The reckless waste of these forests, and the frequency of forest fires, have greatly diminished the supply. By recent legislation Pennsylvania has wisely arranged for the care of her forests by creating large state preserves.

Commerce. Pennsylvania has no seacoast, but its geographical position is favorable to foreign as well as domestic commerce. Through the Delaware River, which at



Scene in the Oil Region.

Philadelphia affords an ample harbor for the largest vessels, access is found to the Atlantic. By the Ohio, passage is made to the Mississippi and the Gulf of Mexico. Its frontage on Lake Erie gives the state easy communication with the ports of the Great Lakes, and an outlet through the St. Lawrence to the Atlantic Ocean. The chief exports are petroleum, breadstuffs, and general provisions.

Along and between the main rivers are canals which once bore the bulk of traffic, and still do a considerable business. The thorough railway service reaches all the principal points in the state, connects with every important line in the country, and continually expands to meet growing requirements. The state has now about 12,000 miles of railroad.

HISTORY.

When, in 1609, Henry Hudson discovered the river which bears his name, he had already seen the Delaware. The first permanent settlements on the Delaware were made by the Swedes. In 1643 they established themselves at Upland, now Chester, the oldest town in Pennsylvania. This first colony, called New Sweden, was taken in 1655 by the Dutch, who claimed the country as a part of New Netherlands, afterwards New York. The British in 1664 took all the Dutch possessions in North America, and both Swedes and Dutch remained as colonists. In 1681 Charles II. granted to William Penn, the founder of Pennsylvania, a tract of land west of the Delaware River. Penn was a member of the Society of Friends, commonly



Scene in the Gas Region.

called Quakers, and had suffered religious persecution in England. He was the son of Admiral Sir William Penn, from whom he had inherited a claim against the English crown for £16,000. He determined to found a colony upon principles of civil and religious liberty. The king named the grant Pennsylvania (Penn's Woods), probably in honor of Penn's father, Sir William.

The following year Penn purchased the tract now comprised in Delaware. This district, designated as the three lower counties on the Delaware, was regarded as a part of Pennsylvania until the Revolution. The eastern part of Penn's territory was mostly occupied by the Delaware Indians, and the western and northern by Six Nations. Penn paid the Indians for the land he took, and made with them a treaty of peace, which for more than fifty years was faithfully observed.

Philadelphia, the "City of Brotherly Love," was founded and named by Penn in 1682. It was laid out on land purchased from the Swedes. Its growth was rapid, and people were drawn to it from many parts of the world.

During the French and Indian war the frontier settlements suffered much. A fort which the English had begun at the head of the Ohio (on the site of Pittsburgh) fell into the hands of the French, who finished it and called it Fort Duquesne. Braddock's attempt to capture it, in 1755, met with disastrous defeat. It was finally retaken in 1758.



Battlefield of Gettysburg.

The patriots of Pennsylvania vigorously opposed the Stamp Act. The first Continental Congress met at Philadelphia in 1774, and the second in 1775. In Independence Hall the Declaration of Independence was adopted July 4, 1776. On Pennsylvania soil were fought the battles of Brandywine and Germantown, in the autumn of 1777. The sufferings of Washington's army during the following winter at Valley Forge forever identified this name with one of the most tragical and heroic episodes of the Revolution.

The Constitution of the United States was framed in 1787 by the Federal Convention which met at Philadelphia. From 1790 to 1800 Philadelphia was the capital of the United States. Until 1799 it was the capital of Pennsylvania. In that year Lancaster became the capital of the state, and Harrisburg in 1812.

During the civil war Pennsylvania furnished to the Union armies nearly 400,000 soldiers. Her territory was invaded by the Confederate forces, and one of the most decisive battles of the war was fought at Gettysburg in



The Capitol, Harrisburg.

1863. Here is a national cemetery, and on the battlefield are numerous monuments commemorative of the great struggle.

The Centennial Exhibition held at Philadelphia in 1876 was a worthy celebration of the one hundredth anniversary of our nation's birth. It was visited by great numbers of people from all parts of the world.

Slavery existed in Pennsylvania from the time of its settlement until the end of the 18th century. It was the first of the states to pass laws providing for emancipation. The conditions under which Pennsylvania was settled and developed drew to it people of different races and creeds. Besides the Swedes and Dutch, and the English Quakers, emigrants from Scotland, Ireland, France, Germany, and other countries early came here. The colony steadily grew in population and wealth, and at last in social unity. In several of the southeastern counties the descendants of the early German settlers still retain much of the ancestral type, perpetuating the traditions, manners, and even the speech of their forefathers. They are, however, sturdy in their American citizenship, and well known for their habits of industry and thrift.

The population of Pennsylvania grew from 434,373 in 1790 to 7,665,111 in 1910, when its density was about 171 persons to each square mile. About one seventh of the population are foreign born. Half the people live in cities and large towns.

Government. The official designation of the state is the Commonwealth of Pennsylvania. The present constitution was adopted in 1873. The legislative power is vested in a general assembly, consisting of a senate of 50 members, elected for 4 years, and a house of representatives of 206 members, elected for 2 years.

The general assembly meets biennially, on the first Tuesday of the odd-numbered years.

The executive department consists of the following officers: governor, lieutenant-governor, secretary of the commonwealth, attorney-general, auditor-general, adju-

tant-general, state treasurer, secretary of internal affairs, and superintendent of public instruction.

The governor, lieutenant-governor, secretary of internal affairs, and state treasurer are elected for 4 years. The auditor-general is elected for 3 years. The secretary of the commonwealth, the attorney-general, and the adjutant-general are appointed by the governor with the consent of the senate. The governor also appoints the superintendent of public instruction for 4 years.

The judicial department consists of a supreme court of 7 judges, elected for 21 years, and not again eligible; a superior court of 7 judges, elected for 10 years; and courts of common pleas and other inferior courts having local jurisdiction.

The state of Pennsylvania is divided into 67 counties. The counties (except Philadelphia) are subdivided into townships, cities, and boroughs, each of which maintains its own organization for the purposes of local government.

Various county and township officers have control of local government. The chief magistrate of a city is the mayor. Its legislative bodies are a common and a select council. The principal officer of a borough is the chief burgess. A borough has one council.

Education. The constitution requires the maintenance of a thorough and efficient system of public schools for the education of all children above the age of 6 years, and the appropriation of at least \$1,000,000 a year for this purpose. The present annual appropriation, larger than that of any other state in the Union, is \$7,500,000. Women are eligible to any office of control under the school laws.

The public schools are under the general care of the state superintendent of public instruction, who is assisted by directors elected by the people, and by school superin-



Independence Hall, Philadelphia.

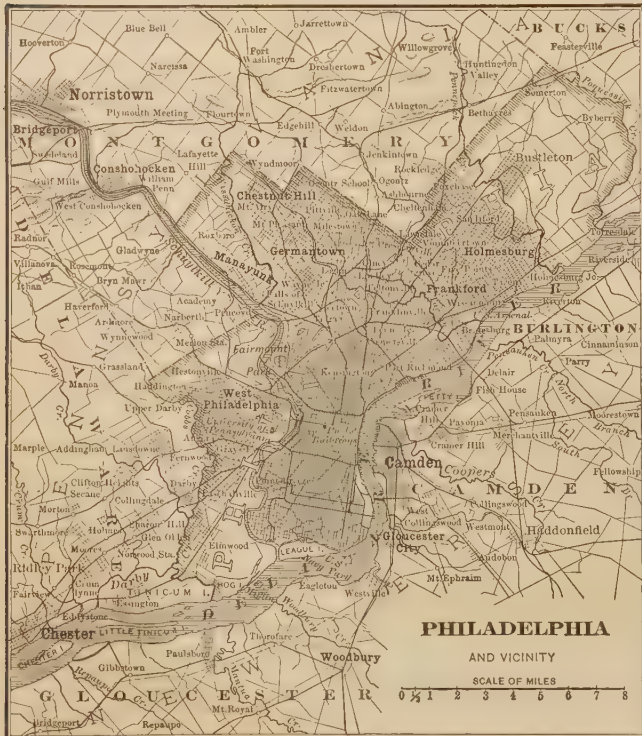
tendents chosen by these directors.

There are 13 state normal schools, located at West Chester, Millersville, Kutztown, East Stroudsburg, Mansfield, Bloomsburg, Shippensburg, Lock Haven, Indiana, California, Slippery Rock, Edinboro, and Clarion. A teachers' institute is held annually in each county.

Education in various institutions of benevolence is furnished by the state, whereby the deaf and dumb, the blind, the feeble-minded, and soldiers' orphans are instructed. State teaching is also given in several schools of reform. Industrial art and manual training have long received special attention. The Pennsylvania State College, at State College, Center county, furnishes free instruction in agriculture and the mechanic arts.

The University of Pennsylvania, located at Philadelphia, is one of the leading institutions of learning in the United States. It is thoroughly organized and equipped for efficient work in its various departments.

There are also in Pennsylvania several other universities of high rank, and many excellent colleges, technical and professional schools, academies, and seminaries. Noted among these are Lafayette College, at Easton, Lehigh University, at South Bethlehem, and the Carnegie Technical Schools, at Pittsburgh.



The City Hall, Philadelphia.

CITIES AND BOROUGHES.

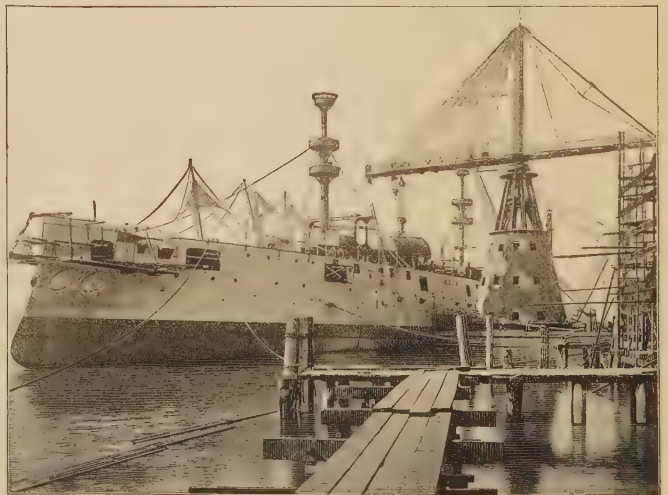
Philadelphia, the largest city in the state, is coextensive with Philadelphia county. It has an area of about 130 square miles. In territory and population it is the third city in the Union, and ranks among the great cities of the world. Its population in 1900 was 1,293,697, and in 1910 the number was 1,549,008. The great area included in Philadelphia provides ample space for building purposes, and in no other large city do so few people live in apartments and tenements. From the

number of dwelling houses owned by their occupants, no great municipality better deserves to be called the "City of Homes."

Within the limits of the city are a number of places which once were separate towns, and still keep their local names — Germantown, Chestnut Hill, Manayunk, Roxboro, Frankford, Holmesburg, Bridesburg, and others. Some of these suburbs, and some beyond the city limits, are remarkable for beauty of situation, scenery, and architecture.

Philadelphia extends along the Delaware about 23 miles, and is connected by ferries with Camden and Gloucester City, New Jersey. The Schuylkill River traverses the city, and is spanned by a number of fine bridges. The Delaware affords a good harbor. Several great railroads center here, and connect the city with all parts of the Union.

In manufactures and commerce, as in population, Philadelphia ranks among the leading cities of the United States. It has thousands of establishments, employing about 250,000 people, whose manufactured products amount in value to several hundred million dollars annually.



Shipyard, Philadelphia.

The most important manufactures are those connected with the textile industry, and include woolen, worsted, and cotton fabrics, and also silk, hosiery and knit goods, and carpet. The products of its great foundries, machine shops, and iron and steel mills include locomotives and a great variety of articles, besides much heavy machinery such as is used in its great sugar refineries, and also in its shipyards, where many large steel vessels are constructed. Other extensive industries are printing and publishing, and the manufacture of clothing, leather, packed meat, malt liquors, tobacco, felt hats, chemicals, patent medicines, lumber, and copper and tin products.

The foreign and domestic commerce of the city is extensive. Steamship lines connect it with American and European ports. Leading exports are petroleum, sugar, breadstuffs and provisions, and manufactured articles.



Pittsburgh.

The coal trade is enormous. Among the chief imports are iron ore, raw sugar and drugs, wool, cotton, and leather.

There are many noteworthy buildings in Philadelphia. Independence Hall is now used as a repository for Revolutionary and other historic relics and memorials. In Carpenters' Hall the first Continental Congress met in 1774. The city hall is one of the largest public edifices in this country. Among other buildings of prominence are those of Girard College, Drexel Institute, Christ Church, the Roman Catholic cathedral, the Pennsylvania Hospital, the post office, the mint, the customhouse, and the Bourse. Fairmount Park is one of the largest and most beautiful parks in the world. In this park was held the Centennial Exhibition in 1876. Many small parks and public squares adorn the city.

The public school system is thoroughly organized, and is conducted with efficiency. Excellent high, normal, and manual training schools are located here. Besides being the seat of the University of Pennsylvania, with its superb buildings, Philadelphia has many other important educational institutions, including various professional schools. There are a number of large libraries. Hospitals and benevolent institutions of many kinds are generously maintained.

Pittsburgh, the county seat of Allegheny county, and the second city in the state, is called the Iron City, on account of its iron manufactures. Its situation at the junction of the Allegheny and Monongahela rivers is favorable for commerce. It is in the heart of the bituminous coal region, and is the center of trade in coal and coke. Pittsburgh is an important railroad center, and is a distributing point for grain and other agricultural products.

In 1907, the city of Allegheny, lying on the north banks of the Ohio and Allegheny rivers, was annexed to Pittsburgh, and this part of the city is now known as the North

Side. An exclusive section of Pittsburgh situated south of the Ohio and Monongahela rivers is called the South Side. The population of Pittsburgh was 534,000 in 1910.

The location of Pittsburgh is no less favorable for manufacturing than for commerce. The nearness of coal, petroleum, natural gas, and iron has led to the growth of immense industries. The principal manufactures are iron and steel, and foundry and machine-shop products. These have an annual value of about \$125,000,000. Other important productions are packed meat, printed matter, cars, pickles and sauces, beer, tobacco, brass products, electrical machinery, paint, clothing, confectionery, cutlery, tools, refined petroleum, and lumber. Pittsburgh has many fine buildings, the famous Carnegie Library, good public schools, the Carnegie Technical Schools, the Western University of Pennsylvania, and other educational institutions.

Scranton, the county seat of Lackawanna county, is the third city of the state. It is one of the great shipping points for the coal of the anthracite region. Here are large silk mills, and it is noted for the extensive manufacture of machinery, malt liquors, hosiery and knit goods, and packed meat.

Reading, the county seat of Berks county, is situated on the Schuylkill River where it breaks through South Mountain. The city has extensive iron and steel works and railroad shops, and manufactures hosiery and knit goods, machinery, boots and shoes, confectionery, hats, iron and steel pipe, beer, packed meat, tobacco, and woolen and felt goods.

Wilkes-Barre, the county seat of Luzerne county, has a fine situation in the Wyoming valley, on the North Branch of the Susquehanna. It is a trade center in the anthracite region, and manufactures silk goods, carriages and wagons, cotton goods, beer, machinery, and wire.

Erie, a port of entry with an excellent harbor, is the county seat of Erie county. It has a large lake trade in coal, petroleum, iron, lumber, and the products of its numerous foundries, machine shops, meat-packing houses, breweries, and flour mills.

Harrisburg, the capital of the state, and county seat of Dauphin county, is beautifully situated on the east bank of the Susquehanna River. Its chief manufactures are iron and steel, boots and shoes, railroad repairs, machinery, silk goods, tin plate, tobacco, and typewriters.

Johnstown, in Cambria county, is on the Conemaugh River. Here are extensive iron and steel works, coke ovens, and manufactures of machinery, flour, beer, pottery, terra cotta, and fire-clay products.

Altoona, in Blair county, at the eastern base of the Allegheny Mountains, is situated in a region of grand scenery. The railroad workshops located here are the largest in the United States.

Allentown, the county seat of Lehigh county, situated on the Lehigh River and Canal, is a railroad city through which pass quantities of coal from the anthracite region. It ranks second in the state in the manufacture of textiles. Metal work, shoes, tobacco, and automobiles are other products. It is the seat of Muhlenberg College, and of Allentown College for Women.

Lancaster, the county seat of Lancaster county, and the oldest inland city



Coal Barges on the Ohio River.

in the state, is surrounded by a very rich agricultural district. It has a large trade in umbrellas and canes, tobacco, and confectionery. Other manufactures are carriages and wagons, leather, machinery, and beer. Lancaster is the seat of Franklin and Marshall College.

York is the county seat of York county. It is in a populous and fertile region, at the junction of several railroads. It has foundries and machine shops, and manufactures agricultural implements, carriages and wagons, textiles, tobacco, and wall paper.

McKeesport, in Allegheny county, at the confluence of the Monongahela and Youghiogheny rivers, has large trade in coal, great iron and steel mills, blast furnaces, and large tube works.

Chester, in Delaware County, is the oldest town in the state. A monument marks the spot where Penn first landed in Pennsylvania, in 1682. Iron and steel working, and the manufacture of cotton and woolen goods, pottery, terra cotta, and fire clay, and leather are the chief industries.

New Castle, the county seat of Lawrence county, has important steel works, tin plate mills, and car shops.

Williamsport, the county seat of Lycoming county, manufactures silk goods, machinery, lumber, rubber boots and shoes, furniture, and leather.

Easton, the county seat of Northampton county, has railroad and canal connections with the anthracite, iron, and slate regions. Silk mills and other manufactories are located here. Easton is the seat of Lafayette College.

Norristown, the county seat of Montgomery county, is situated on the Schuylkill River. It has knitting and woolen mills, cigar factories, foundries, and machine shops.

Shenandoah, in Schuylkill county, is an important mining city in the anthracite region, and it also has breweries and other manufactories.

Hazleton, in Luzerne county, is in the heart of the Lehigh coal field. It ships vast quantities of coal, and has silk, clothing, and knitting factories.

Butler, the county seat of Butler county, has a large oil trade, glass, lead, and flour mills, and manufactures oil-well supplies and steel cars.

Pottsville, the county seat of Schuylkill county, is a great shipping point for coal, and has extensive rolling mills, foundries, and machine shops, besides silk and knitting mills.

South Bethlehem is in Northampton county, on the Lehigh River. Heavy ordnance and ship armor, especially for the navy, are manufactured; besides refined zinc, tobacco, knit goods, and machinery. Here is the seat of Lehigh University.

Shamokin, in Northumberland county, in one of the great anthracite fields, has a large coal business, and a variety of manufactories.

Braddock, in Allegheny county, on the Monongahela, 10 miles above Pittsburgh, manufactures much iron and steel, besides machinery and cars.

Lebanon, the county seat of Lebanon county, is in a rich iron district. Here are various manufactories, including rolling mills, blast furnaces, and machine shops.

Wilkesburg, in Allegheny county, is largely a place of residence for people employed in Pittsburgh. Here are large planing mills.

Nanticoke, in Luzerne county, is largely engaged in the mining and shipping of coal. Beer, hosiery, and bricks are manufactured.

Washington, the county seat of Washington county, is in a coal and natural gas district. It has extensive glass works, and is the seat of Washington and Jefferson College.

Homestead, in Allegheny county, on the Monongahela, has immense steel works. Here also are machine shops, glass, brick, and bridge works.

Dunmore, in Lackawanna county, 3 miles from Scranton, is extensively engaged in coal mining. Here are large railroad repair shops.

Mt. Carmel is in Northumberland county, on several railroads. Coal mining is the leading industry. Here are large iron works.

Carbondale, in Lackawanna county, is engaged in the mining and shipping of coal, and has railroad shops, foundries, and planing mills.

Plymouth, in Luzerne county, on the North Branch of the Susquehanna, mines coal, has knitting mills, and an active trade.

Pittston, in Luzerne county, on the North Branch of the Susquehanna, is chiefly interested in coal mining, and has breweries and other manufactories.

Mahanoy City, in Schuylkill county, has a large number of anthracite collieries, shirt factories, and is a center of trade.

Duquesne, in Allegheny county, has great iron and steel works, coal mines, and natural gas, and is surrounded by a good agricultural district.

Oil City, in Venango county, on Allegheny River, produces oil, and manufactures oil-well supplies, tubing, engines, and boilers.

Pottstown, in Montgomery county, on the Schuylkill, manufactures pig iron, nails, structural and boiler iron, bridges, silk, hosiery, and cigars.

Sharon, in Mercer county, on the Shenango River, has good railroad connections, and manufactures iron and steel, tin plate, flour, and bricks.

McKees Rocks, in Allegheny county, manufactures iron and steel, and foundry and machine shop products.

Bradford, in McKean county, is a center of trade in the oil region. The leading manufactures are foundry and machine shop products.

Steelton, in Dauphin county, 3 miles from Harrisburg, has large steel works, blast furnaces, brick works, and shirt and hosiery factories.

Sunbury, the county seat of Northumberland county, on the Susquehanna, is a shipping point for coal. It has large silk mills, railroad shops, and other manufactories.

Uniontown, the county seat of Fayette county, is in the coke region. Here are foundries, machine shops, glass works, breweries, and flour mills.

Greensburg, the county seat of Westmoreland county, is a coal mining and coke making center. It has various manufactories.

Connellsville, in Fayette county, is the center of the Connellsville coke region, where many thousand people are employed, and it also has railroad shops and a number of manufactories.

Bethlehem, in Northampton county, on the Lehigh River, has a diversity of industries, the chief of which are the manufacture of silk goods, iron, steel, and zinc. Bethlehem is also an educational center.

Meadville, the county seat of Crawford county, has iron works, machine shops, and various manufactories, and is an educational center. It is the seat of Allegheny College.

Dubois, in Clearfield county, in coal and natural gas fields, has lumber trade, machine shops, and glass works.

Beaver Falls is in Beaver county, and on Beaver River. It has steel and bridge works, and manufactures hardware and glass.

North Braddock, in Allegheny county, has manufactures of brick and tile.

Chambersburg, the county seat of Franklin county, has machine shops, and manufactures woolen goods, hosiery, shoes, and gloves. It is the seat of Wilson College for Women, and the Chambersburg Academy.

Monessen, in Westmoreland county, has manufactures of iron and steel, tin plate, and wire fencing.

West Chester, the county seat of Chester county, is beautifully situated, and noted as an educational center. It also has a variety of industries.

Columbia is in Lancaster county, on the Susquehanna. It manufactures iron, silk, lace, stoves, brushes, and hardware, and ships much coal.

Old Forge, in Lackawanna county, is in the anthracite mining region. It has silk mills and other manufactories.

Coatesville, in Chester county, has iron and steel works, woolen and silk mills, and machine shops.

Warren, the county seat of Warren county, is a center for the petroleum trade, and is also engaged in the manufacture of refined petroleum, iron, machinery, furniture, and other articles.

Phoenixville is in Chester county, on the Schuylkill. It has great iron and steel works, and manufactures pottery and textiles.

Carlisle, the county seat of Cumberland county, manufactures shoes, cut glass, and iron and steel products. It is the seat of Dickinson College, and of an Indian school maintained by the federal government.

Farrell, in Mercer county, has important manufactures of iron and steel.

Carnegie, in Allegheny county, has coal mines and lead refineries, and manufactures iron and steel, glass, and many other articles.

GEOGRAPHY OF NEW JERSEY.

BY VERNON L. DAVEY,

Superintendent of Schools, East Orange, N. J.

PHYSICAL FEATURES.

Location, Extent, and Outline. What states border New Jersey? What bodies or streams of water form the greater part of its boundaries? What is its southernmost point? Near what degree of latitude is this point? On what degree of latitude is the northeastern corner of the state? Describe the northern boundary. What is its length?

With the scale of miles, find the length of New Jersey from Cape May to its northernmost point. How wide is its widest part?

The area of the state is 8224 square miles. Only three other states in the Union have so small an area. What are they?

Between what two great cities in other states does New Jersey lie? What advantages does it derive from such a situation? The Atlantic coast line is more than 120 miles long, yet the only good harbors are Newark Bay and Raritan Bay. Why are there no large cities on the coast south of Elizabeth?

Surface and Drainage. In what part of New Jersey are its mountains? In what direction do the mountain ridges chiefly extend? To what system of highlands do these mountains belong? Describe the drainage of the state. Name and describe its largest rivers? Where are its lakes?

As to its surface the state may be roughly divided into three parts—a northern region, high and mountainous; a southern, low, flat, and sandy; and a middle, gently undulating at the south, and becoming more broken as the mountainous third is approached. The highest mountain range is the Kittatinny, which extends along the Delaware River for thirty miles from the northwest corner of the state. This is an extension of the Blue Mountains of Pennsylvania, and reaches at one point an altitude of 1800 feet. The celebrated Delaware Water Gap is a deep gorge which the Delaware River has cut through this range. The fertile and beautiful Kittatinny valley lies parallel to this range, and separates it from the slightly lower but equally picturesque Highland range, twelve miles farther east.

The latter range has no prominent peaks, but is composed of several minor ranges separated by deep and narrow valleys. The valleys have been made by the erosive action of the streams, which have sometimes followed the slopes of the tilted slate, limestone, or crystalline rocks, and sometimes cut through the softer beds.

During the glacial period the ice sheet extended across the northern portion of the state. It plowed down and deeply furrowed the rocky ledges of the mountains, ground the softer rocks of the surface into mud, filled many depressions, formed basins for lakes and ponds by closing the ends of valleys, built dams across streams, and at its melting southern end left great piles of boulders and gravel which it had carried from farther north. These hills and boulders form a distinct moraine which is easily traced from Perth Amboy westwardly to Belvidere.

Midway between the Highland range and the Hudson River extend the trap-rock ridges known as the Watchung Mountains. The eastern ridge in this range is known as the First Mountain. A lower parallel ridge to the west is called Second Mountain. These two ridges are often called the Orange Mountains. Other less important trap ridges occur farther south in this formation. They are known by local names.

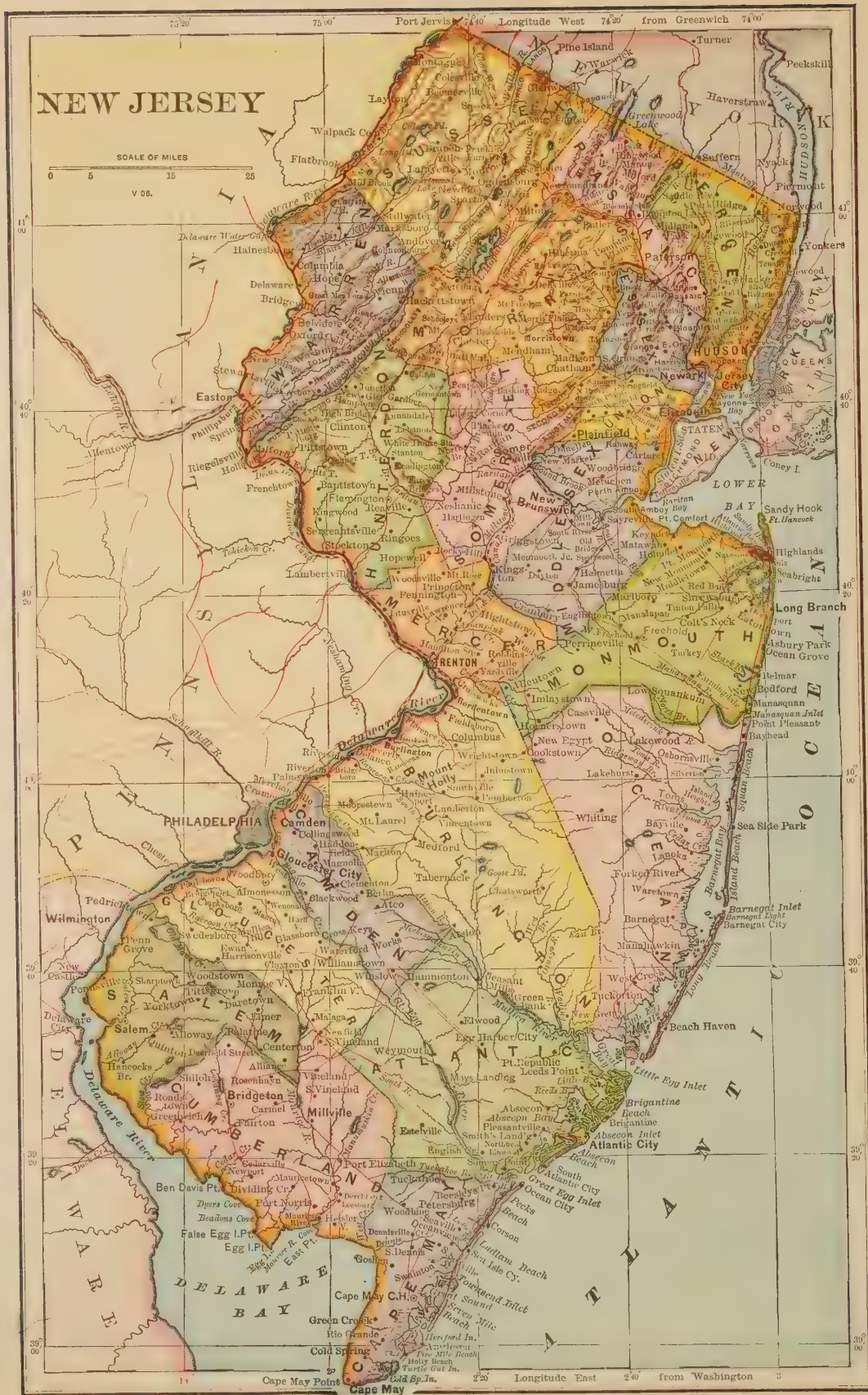
First Mountain reaches a height of from 300 to 600 feet and affords beautiful views of the populous plain extending from the mountain to the Hudson River. Its summit and slope are covered with parks and handsome residences. The underlying rock is brown sandstone. The dark, fine-grained trap rock was forced up through the sandstone in a melted condition. As it cooled a columnar structure was formed in the trap in many places. In the quarries near Orange, masses of columns have been found resembling those of the Giant's Causeway in Ireland. The decomposing trap rock forms a yellow soil; that from the sandstone is red.

Another trap ridge skirts the Hudson River from the New York state line to Jersey City. This forms the well-known Palisades along the Hudson. It bends back from the river just north of Hoboken, and running south forms a barrier through which the railroads pass by long tunnels or cuts.

The whole southern part of the state was built up from the material washed down from the rocky highlands by rivers, and from the detritus washed up by the sea. Beaches were gradually extended and sandy surfaces covered with soil until the present form of the state was determined. The coast reaches a height of nearly 400 feet in the Navesink Highlands near Sandy Hook, but is generally flat with a series of low hills of sand near the shore.



Basaltic Columns near Orange.



These afford desirable building sites for summer homes, which dot the coast over its entire length.

Much of the southern coast is bordered by long flat strips of sand parallel to the mainland and separated from it by lagoons. The sandy strips have been built up by the waves and the wind, and the lagoons are gradually filling with the sand blown from the beaches and with the detritus brought by the rivers. Were it not for a slight gradual subsidence of the coast the state would more rapidly extend into the ocean along its shallower shores.

Some of the mountain streams broaden into lakes, of which there are many of small area. Lake Hopatcong and Greenwood Lake are the largest of these. The altitude and beauty of these lakes make them popular summer resorts.

Large use is made of the abundant water power of the state. The northern streams are easily utilized for this



Passaic River at Little Falls.

purpose. The Passaic River furnishes power to many mills and factories at Little Falls and Paterson, where it descends sharply over the edges of the hard trap-rock ridges, forming beautiful waterfalls.

Climate. The climate of the state is affected by the nearness of the ocean, and by the varying elevation of the surface. The northern counties are much cooler than the southern and eastern in both summer and winter. Near the ocean, however, the summers are much more comfortable than inland, as the varying temperature of the land and water causes almost continual currents of air from the cooler toward the warmer surface, furnishing relief from the heat.

INDUSTRIES.

The leading occupations of the people are manufacturing, agriculture, mining, fishing, and commerce.

Manufacturing. The proximity of New Jersey to two great cities, its superior facilities for transportation, its abundant water power and its mineral and agricultural wealth, have all united to create and foster extensive manufacturing interests. The towns of Bridgeton, Millville, and Glassboro, glass-making centers in the southern part of the state, are examples of localities in which manufacturing have been established because the raw material needed is produced in the vicinity. Paterson affords an example of the establishment of great mills and factories because of its vast water power, and Newark and Jersey City show the influence of the railroads and water routes.

There are few villages or cities in the state without at least one flourishing and important manufacture. New Jersey leads the Union in the making of silk goods, in the smelting and refining of copper, and in the manufacture of oil cloth and linoleum. It ranks second in the manufacture of chemicals and pottery. Other leading manufactures are machinery, refined sugar and petroleum, packed meat, woolen and cotton goods, leather, electrical supplies, tobacco, beer, rubber goods, soap, lumber, jewelry, paint and varnish, and iron and steel products.

Agriculture. The river basins in the northern part of the state are fertile and afford excellent pasturage. Large quantities of butter and milk are sent from this region, and good crops of grain and grass are produced. The middle third of the state contains much rich farming land suitable for a great variety of crops. Market gardening is here an important industry. New York and Philadelphia receive from this region vast quantities of excellent vegetables, melons, peaches, berries, apples, and other fruits. Nurseries and seed farms are numerous, and furnish profitable occupation to many persons.

In the southern counties the soil is thin, but is adapted to the production of grapes and small fruits. Where, as in this portion of the state, the soil is light and sandy, it is enriched by the application of marls and other materials easily obtained, and skillful cultivation secures excellent results. The marshy areas of this region have been utilized



Lake Hopatcong.

for the growth of the cranberry, and this is one of the important products of this section.

A large proportion of the southeastern part of the state is a great wilderness of pines, with occasional clearings where the timber has been cut away and farming operations have been commenced. This region stretches southwest from Long Branch to the middle of Cape May county.



Marl Beds.

Mining. Extensive beds of rich zinc ore are found in Sussex county, and this is one of the important products of the state. Deposits of iron are also found in the north-western counties, and afford employment to many people both in mining the ore and in smelting it.

The ore is chiefly magnetite. Much of it contains but little iron and has been considered nearly worthless, but a recently perfected process, which at small expense grinds the ore to a powder, and then extracts the particles of iron by means of powerful magnets, seems likely to make this low grade ore valuable and thus largely increase the mining industry.

The same counties furnish excellent roofing slate and large quantities of limestone which is used for building, and for making lime and Portland cement. The brown sandstone quarries in Essex county are famous. The Palisades and the Watchung Mountains furnish the hard trap rock which is largely used for macadamizing roads. A broad belt of marl extends across the state southwest from Long Branch, furnishing an abundance of this valuable fertilizer. Beds of glass sand in the southern counties have led to the establishment of extensive glass works. Fire clay and potter's clay are obtained near Amboy and Trenton.

Fisheries. New Jersey has numerous oyster beds on the seacoast, and many citizens are engaged in the fisheries. The shad fisheries of the Delaware and Hudson rivers are famous and profitable.

Commerce. Four great railway trunk lines and several lines of less importance cross the state, radiating from Jersey City and Hoboken. Numerous branches and connecting lines unite with the main lines to form a network covering the state, to the great advantage not only of the manufacturer, but also of the fruit grower, the market gardener, the dairyman, the miner, the merchant, and the traveler. The Morris Canal, extending from Phillipsburg to Jersey City, and the Delaware and Raritan Canal, from Bordentown to New Brunswick, assist in transportation.

Electric street car lines connect many outlying villages with the large towns and with each other. These lines promise soon to cover all the more populous parts of the state. Steps have been taken toward the construction of a ship canal to assist in carrying on the immense freight traffic between New York Bay and the Delaware River.

HISTORY.

The country between the Hudson and the Delaware was claimed by the Dutch, who, about 1620, built a small fort at Bergen, where Jersey City now stands, and three years later another near the present site of Camden.

This territory, as well as that east of the Hudson, was claimed also by the English, who succeeded in conquering the Dutch colony of New Netherlands in 1664. The Duke of York then became the owner of what is now New Jersey. He transferred it to Lord Berkeley and Sir George Carteret, the latter of whom had been governor of the island of Jersey. His territory was called East Jersey, and Berkeley's West Jersey. Later some Quakers, among whom was William Penn, purchased the entire province. It prospered under their administration, but was finally, in 1702, put under the direct control of the English government and continued as a royal province until the Revolution.

New Jersey took an active part in that war. The most important battles fought within her boundaries were those of Trenton, Princeton, and Monmouth. The first legislature met at Princeton in 1776. In 1790 Trenton became the capital. The constitution was adopted in 1776, revised in 1844, and amended in 1875.

In 1790 the population of the state was 184,139; it was 1,883,669 in 1900, and, according to the census of 1910, it had increased to 2,537,167.

Government. The legislature consists of a senate, in which each county is represented by one member, and a general assembly of 60 members.

The chief executive officers are a governor, elected by the people for three years; a secretary of state, attorney-general, adjutant-general, superintendent of public instruction and other officers, appointed by the governor with the advice and consent of the senate; and a treasurer and comptroller, elected by the legislature.

The judiciary department of the state government comprises a court of errors and appeals, a supreme court, circuit courts, a court of chancery, and inferior courts.



Morris Canal crossing Passaic River.



View on Broad Street, Newark.

Education. The public school system is liberally supported by a general state tax and the interest of the school fund, supplemented by local taxation. Free instruction and text-books are provided for all children of the state between five and eighteen years of age.

The superintendent of public instruction is the executive officer of the state board of education.

This body appoints county superintendents, who exercise supervision over the public schools of the townships and boroughs.

The leading institutions for higher education are Princeton University at Princeton, — the oldest and largest in the state, — Rutgers College at New Brunswick, Stevens Institute of Technology at Hoboken, and Seton Hall College at South Orange. The State Normal School at Trenton provides free instruction through a three years' course to properly qualified persons wishing to become teachers. The State Agricultural College, in which free tuition is given to 40 students, is connected with Rutgers College.

Other institutions maintained by the state, which are not elsewhere mentioned, are the Soldiers' Home at Kearny, the Reform School for Boys at Jamesburg, the School for Deaf-mutes and the State Home for Girls at Trenton, the Manual Training and Industrial School for Colored Youth at Bordentown, the Farnum Preparatory School at Beverly, and the Institution for Feeble-minded Women and the School for Feeble-minded Children at Vineland.

CITIES AND TOWNS.

Newark (347,469, population, 1910), on the Passaic River, near the head of Newark Bay, is the largest city of the state. In variety and quantity of goods manufactured it ranks among the leading cities of the United States. Among the chief products are refined copper, leather, machinery, jewelry, malt liquors, paint and varnish, clothing,

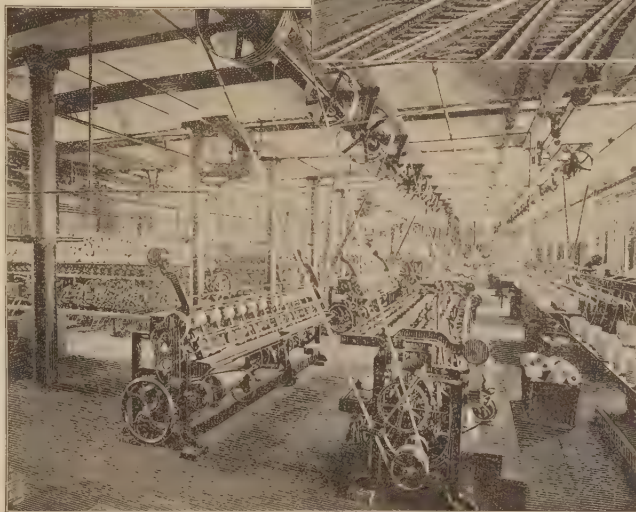
electrical supplies, chemicals, hats, packed meat, tobacco, boots and shoes, and cutlery and tools. It has fine parks, business blocks, and schools. The water supply is brought from the highland region north of Dover. The system cost \$6,000,000, and is capable of supplying to the city 50,000,000 gallons of water per day.

Essex county, of which Newark is the county seat, has appropriated \$2,500,000 for the purpose of establishing a system of public parks throughout the county. The system comprises large tracts on the Orange Mountains, and smaller areas scattered among the cities and townships, with broad connecting parkways or boulevards.

Jersey City (267,779) has an extensive water front on the Hudson River and New York harbor, and is the ter-



A Railroad Station, Jersey City.



Interior of a Linen Factory, Paterson.

minus of the Morris Canal and of several lines of railroad. It is distinctly a manufacturing and railroad city. Among the most important manufactures are tobacco, railroad cars, chemicals, soap and candles, foundry and machine-shop products, lumber, malt liquors, silk, rubber goods, and refined sugar. The slaughtering interests are very extensive. Several lines of ferry boats, controlled by the great

lines of railroad which center here, cross the Hudson River and afford easy communication with New York.

Paterson (125,600). The vast water power furnished by the falls of the Passaic has led to the establishment here of numerous important manufactories. The product of the silk mills of Paterson surpasses, in both quantity and variety, that of any other city in the United States. Cordage and twine, cotton and linen thread, machinery, and numerous other manufactures are also made here.

Trenton (96,815), the capital, is famous for its potteries. There are also important iron and steel works, factories for making rubber goods, machine shops, breweries, and



State Capitol, Trenton.

wire and cable works. Here is the State Normal School, and near the city are the New Jersey School for Deaf-mutes, the State Industrial School for Girls, and one of the two state hospitals for the insane.

Camden (94,538) lies opposite Philadelphia, with which it is connected by ferries. Railroad lines radiate from Camden to Trenton, Atlantic City, Cape May, and other important towns of southern New Jersey. The leading manufactures are leather, steel ships, phonographs, machinery, woolen goods.

Elizabeth (73,409), in Union county, is situated on Newark Bay and Staten Island Sound, and is an important railroad junction. It is a large coaling port, being one of the main outlets of the Pennsylvania coal fields. Among its many manufactories are large railroad repair shops, wire works, and machine shops, besides the most extensive sewing-machine works in the world. Many New York business men reside here.

Hoboken (70,324), in Hudson county, joining Jersey City on the north, is an important shipping and manufacturing city. The chief manufactures are machinery, furniture, leather, and lead pencils. Its population contains a large German element. Two European steamship lines have docks here. Ferries connect the city with New York. Adjoining Hoboken on the west and north are *West Hoboken*, noted for silk manufacture, and the town of *Union*, besides other thickly settled places.

Bayonne (55,545) is situated on the peninsula lying between New York Bay and Newark Bay. Here are great oil refineries, and docks from which coal is shipped in all directions.

Passaic (54,773) is a business and manufacturing city on the Passaic River. Here are extensive cotton and woolen mills, textile finishing works, and silk mills.

Atlantic City (46,150) is one of the most noted seaside resorts on the coast. It has a wide beach overlooked by a broad "board walk" sev-

eral miles long. It is said to contain more than 700 hotels and boarding houses.

East Orange (34,371), a city of three and a half square miles of territory, is almost exclusively occupied by suburban residences. It has many fine streets and beautiful churches. Its school system is generously maintained.

Orange (29,630), a city in Essex county, is at the base of the First Orange Mountain. It is noted for its manufacture of phonographs and hats, and has fine residence streets. It is the center of the group of suburban townships known as the Oranges, the population of which is largely made up of persons having business interests in New York.

West Orange, on the sides and summit of the Orange Mountains, contains the beautiful Llewellyn Park with its handsome residences. Eagle Rock, in West Orange, on the crest of First Mountain, affords a fine view of the country and cities between the mountain and the Hudson. *South Orange* joins Orange on the south, and has many fine homes.

Perth Amboy (32,131), in Middlesex county at the head of Raritan Bay, is a port of entry. The chief industries are the making of terra cotta, fire brick, and shipbuilding.

New Brunswick (23,388), in Middlesex county on the Raritan, is a railroad and canal center. It manufactures hosiery, wall paper, rubber goods, and harness, and is the seat of important educational institutions.

Montclair (21,550), in Essex county, is well known for its beautiful location on the mountain side, its handsome homes, and excellent schools.

Plainfield (20,550), in Union county, is well known as a beautiful residential city. The public schools are excellent, and there are some manufactures, chief among which are printing presses and machinery.

Kearny (18,659), in Hudson county on the Passaic, manufactures packed meat, linoleum, celluloid, thread, metal goods, and chemicals. The post office is Arlington, and the town is also noted for its attractive residences.

Bloomfield (15,070) is in Essex county. Its leading manufactures are electrical machinery, organs, elevators, pins, paper, and silk and woolen goods.

Harrison (14,498), in Hudson county on the Passaic opposite Newark, manufactures steel, machinery, trunks, shade rollers, and other products.

Bridgeton (13,624), in Cumberland county, has important manufactories producing glass, iron products, and cotton goods.

Other important places having a population of more than 5000 are Burlington, Gloucester City, Hammonton, Millville, Salem, and Vineland in the southern part of the state, and Asbury Park, Belleville, Dover, Englewood, Garfield, Guttenberg, Hackensack, Irvington, Long Branch, Morristown, North Plainfield, Nutley, Phillipsburg, Princeton, Rahway, Ridgewood, Roosevelt, Rutherford, Somerville, South Amboy, Summit, Red Bank, Westfield, and West New York in the northern part of New Jersey.



Shipyard and Ironworks, Hoboken.

Paul Shorey

Charles L. Groat

Lawrence L. Groat

Charles L. Groat

John A. Brown

John A. Brown

Paul A. Groat

Paul A. Groat

Robert L. Groat

Robert L. Groat

William L. Groat

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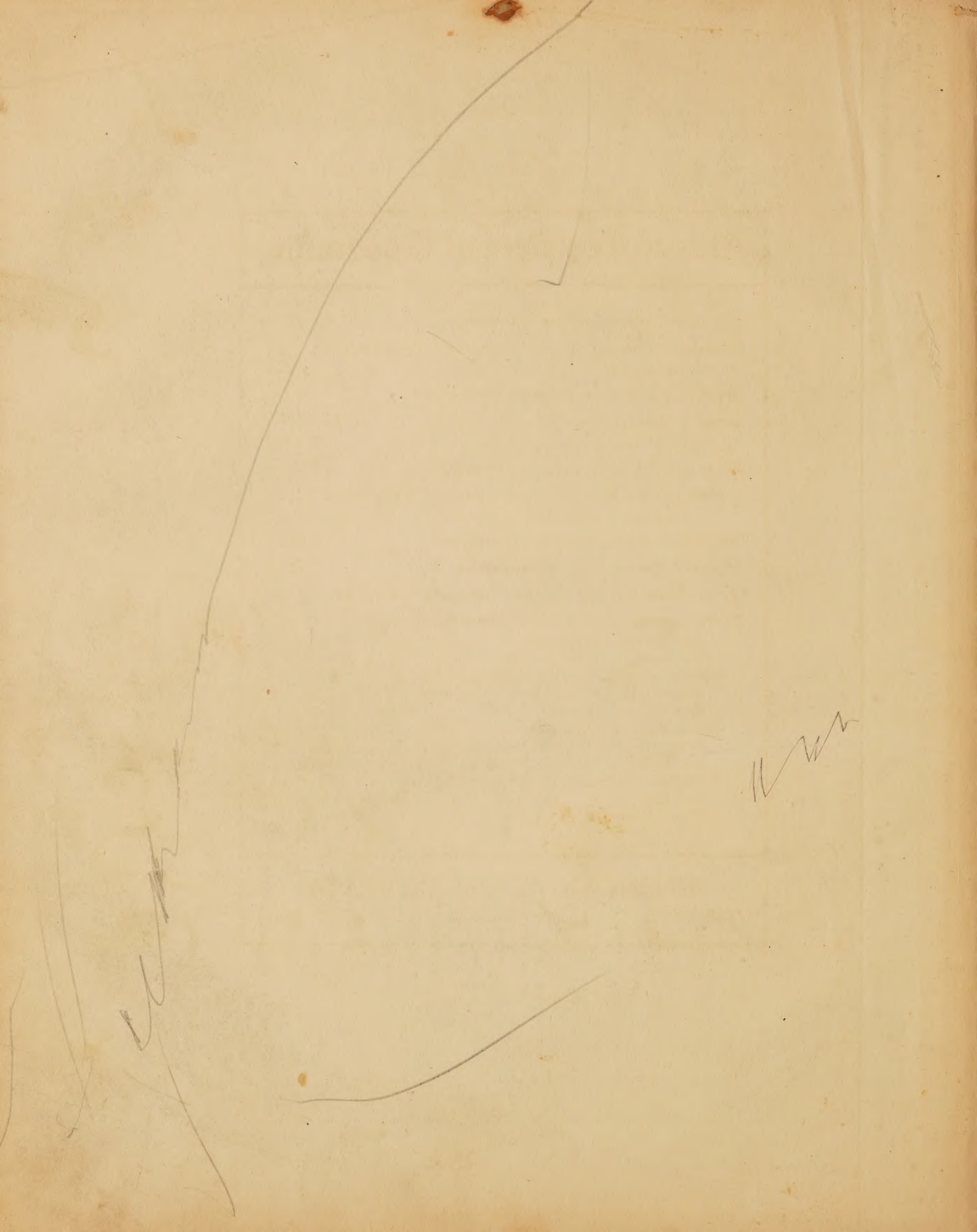
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